89-17.1

STATE OF THE LAGUNA CONFERENCE

California Department of
Fish and Game
City of Santa Rosa
City of Sebastopol
County of Sonoma
U.S. Fish and Wildlife Service

American Society of Landscape Architects,
Redwood Empire Section
Bodega Bay Chamber of Commerce
California Certified Organic Farmers
California Department of Parks and Recreation,
No. Reg. Headquarters
California Native Plant Society,
Milo Baker Chapter
Committee for Restoring Santa Rosa Creek
and Creek Week
Circuit Rider Productions
City of Cotati
City of Rohnert Park
Concerned Citizens for Santa Rosa
Ducks Unlimited
Environmental Studies Department,
Sonoma State University
Friends of the Laguna
League of Women Voters
Madrone Audubon Society
Rohnert Park Chamber of Commerce
Russian River Chamber of Commerce
Russian River Fly Fishers
Santa Rosa Department of Utilities
Sebastopol Chamber of Commerce
Sebastopol Kiwanis
Sebastopol Tomorrow
Sierra Club, Sonoma Group
Sonoma County Farm Bureau
Sonoma County Farmlands Group
Sonoma County Fish and Wildlife
Advisory Board
Sonoma County Foundation,
Jean Schulz Fund for the Environment
Sonoma County Streams and
Wetlands Association
Sonoma County Tomorrow
Sonoma County Water Agency
Sonoma Land Trust
Terwilliger Nature Education Center
Trout Unlimited
Western Sonoma County Rural Alliance
YA-KA-AMA

September 23, 1989

WELCOME to the State of the Laguna Conference. And thank you for your interest in the Laguna de Santa Rosa. We hope that the information presented today will foster even more interest and involvement.

The idea of this conference developed from meetings of the Laguna Committee. The Committee was created in 1988 when the City of Sebastopol invited all agencies and individuals concerned with the Laguna to meet together and discuss problems of its use, management and preservation. The goal of the Committee is to develop a mutual respect and understanding among all parties concerned with the Laguna.

The Laguna Committee meets every fourth Monday of the month and meetings are open to the public. You are invited to attend and participate in the process of developing a shared view of the Laguna de Santa Rosa. Call the City of Sebastopol (823-7863) for the time and location of the next meeting.

City of Sebastopol, 7120 Bodega Avenue, Sebastopol, CA 95472 (707)823-7863

STATE OF THE LAGUNA CONFERENCE

Sponsors

California Department of Fish and Game
City of Santa Rosa
City of Sebastopol
County of Sonoma
U.S. Fish and Wildlife Service

Conference Committee

Harold Appleton, Co-Chair
Kim Cordell, Co-Chair
Dan Carlson
John Cummings
Miles Ferris
Steve French
Jennifer Joell
Anne Magnie
Suzanne Nelson
Richard Nichols
Dave Richardson
Bob Sharp
Dave Smith
George Snyder
Nick Stewart
Marco Waaland

Consultant:
Barbara Schneiders

Supporting Organizations

American Society of Landscape Architects,
Redwood Empire Section
Bodega Bay Chamber of Commerce
California Certified Organic Farmers
California Department of Parks and Recreation,
No. Reg. Headquarters
California Native Plant Society, Milo Baker Chapter
Committee for Restoring Santa Rosa Creek
and Creek Week
Circuit Rider Productions
City of Cotati
City of Rohnert Park
Concerned Citizens for Santa Rosa
Ducks Unlimited
Environmental Studies Department,
Sonoma State University
Friends of the Laguna
League of Women Voters
Madrone Audubon Society
Rohnert Park Chamber of Commerce
Russian River Chamber of Commerce
Russian River Fly Fishers
Santa Rosa Department of Utilities
Sebastopol Chamber of Commerce
Sebastopol Kiwanis
Sebastopol Tomorrow
Sierra Club, Sonoma Group
Sonoma County Farm Bureau
Sonoma County Farmlands Group
Sonoma County Fish and Wildlife Advisory Board
Sonoma County Foundation,
Jean Schulz Fund for the Environment
Sonoma County Streams & Wetlands Association
Sonoma County Tomorrow
Sonoma County Water Agency
Sonoma Land Trust
Terwilliger Nature Education Center
Trout Unlimited
Western Sonoma County Rural Alliance
YA-KA-AMA

Contributors

With Special Thanks to the **City of Sebastopol, City of Santa Rosa,** *and the* **Sonoma County Foundation, Jean Schulz Fund for the Environment**

American Society of Landscape Architects, Redwood Empire Section
Harold and Patricia Appleton, Appleton Forestry Nursery
Betty Bock
Ken Bottcher
California Flora Nursery
California Native Plant Society
Ernie Carpenter
Pat Carr and Valerie Gizinski
Steven Chatham, Prunuske Chatham
Circuit Rider Productions
Coastwalk
Candi Cohen
Paul Colling, Sonoma Gold
Communication Graphics
Guy Conner and Pat Wiggins
Kim Cordell
John Cummings
Ducks Unlimited
Bill and Maxine Durney
Steve French
Friends of the Laguna
Martin and Joyce Griffin, Hop Kiln Winery
Scott Gundelfinger
Tim Henke
Bob and Nancy Higham
Jennifer Joell
Steve Klausner, Sonoma County Streams and Wetlands Association
Bill and Lucy Kortum
Brad Lundborg
Anne Magnie
Scott Mathieson, Laguna Farms
Gary McFarland, Laguna Veternary Clinic
Jean Merriman, PhD
Dale and Cindy Motiska, Neon Palm Nursery
Gary and Suzanne Nelson
Richard and Brenda Nichols
Bill and Kathy Oetinger
Jim Pedgrift
Marshall Potter
Bill and Sandra MacIver
Dave Richardson, CH2MHill
Everett and Marcie Salmon
Don and Marilyn Sanders
Barbara Schneiders
Sebastopol Chamber of Commerce
Sebastopol Kiwanis
Sebastopol Tomorrow
Bob Sharp
Sierra Club, Sonoma Group
Dave Smith
Tim Smith
George Snyder
Sonoma County Farmlands Group
Sonoma Land Trust
Nick Stewart
Otto and Anne Teller
Carol Vellutini and Tom Raboin
Marco Waaland, Golden Bear Biostudies
Western Sonoma County Rural Alliance
Dan and Dee Wickham
The Wine Press

STATE OF THE LAGUNA CONFERENCE

PROGRAM

MORNING SESSION

8:00 A.M. - INTRODUCTION

Moderator:	Anne Magnie, Sebastopol City Council Member
Keynote Speaker:	Congressman Doug Bosco
Natural History Overview:	Bill Cox, California Dept. of Fish & Game Fisheries Biologist
Cultural History Overview:	Michael Jablonowski, Administrative Archaeologist, Anthropological Study Center, Sonoma State University
	Daniel Markwyn, Ph.D., Professor of History, Sonoma State University
Questions	

9:20 A.M. - THE LAGUNA TODAY

Farming:	Jim Dei, Sebastopol Dairyman
Public Use:	Ernie Carpenter, Sonoma County Supervisor
Questions	

10:00 - 10:15 A.M. - BREAK

Water Quality:	Dave Smith, DWS Consulting
Hydrology/Water Supply:	Robert Beach, General Manager, Sonoma County Water Agency
Reclamation:	Judy Nosecchi, City of Santa Rosa Utilities Department
Overview:	Marco Waaland, Golden Bear Biostudies
Questions	

12:00 - 12:45 P.M. - LUNCH

AFTERNOON SESSION

12:45 P.M. - SPEAKER

Assemblyman Dan Hauser - "The Evolution of the Arcata Marsh as a Community Endeavor"

1:00 P.M. - THE LAGUNA TOMORROW

FUTURE PLANNING PANEL - Moderator: John Cummings, Environmental Consultant

Members of this Panel will present brief sketches of their vision for the future of the Laguna. The audience will be invited to question the Panel.

Transportation Planning: Nick Stewart, Sebastopol City Council Member

Development in the Laguna: Frank Denny, President, Building Industry Association (Good Speaker)

Life on the Laguna: Suzanne Nelson, Laguna Resident

Agriculture's Future Along the Laguna: Bob Beretta, Sonoma County Dairyman

Coexistence of Agriculture & Wildlife: Dwight Caswell, Sonoma County Farmlands Group (Good)

Wildlife Refuge, Restoration & Enhancement: Allan Buckmann, Local Unit Terrestrial Biologist, California Department of Fish & Game

Downstream Perspectives: Tom Lynch, River Resident (Strong Presentation)

2:30 - 2:45 P.M. - BREAK

Section 404 - Clean Water Act

REGULATORY PANEL - Moderator: Harold Appleton, Consulting Engineer

Members of this Panel, consisting of agency people, will explain how their agencies affect activities in the Laguna, using specific examples when possible. The audience will be invited to question the Panel.

North Coast Reg. Water Quality Control Board: Bob Tancreto, District Engineer

California Department of Fish & Game: Bill Cox, Local Fisheries Biologist

Sonoma County Planning Department: Richard Lehtinen, Senior Environmental Planner

Sonoma County Water Agency: Bob Morrison, Operations Manager

Section 404 of the Clean Water Act: Vicki Reynolds - Sec. 404-Clean Water Act. Now with E.P.A.

U.S. Fish & Wildlife Service: Mike Long, Fish & Wildlife Biologist — Wetland Policy

Sonoma/Marin Mosquito Abatement District: Ron Keith, Vector Ecologist - Forestry

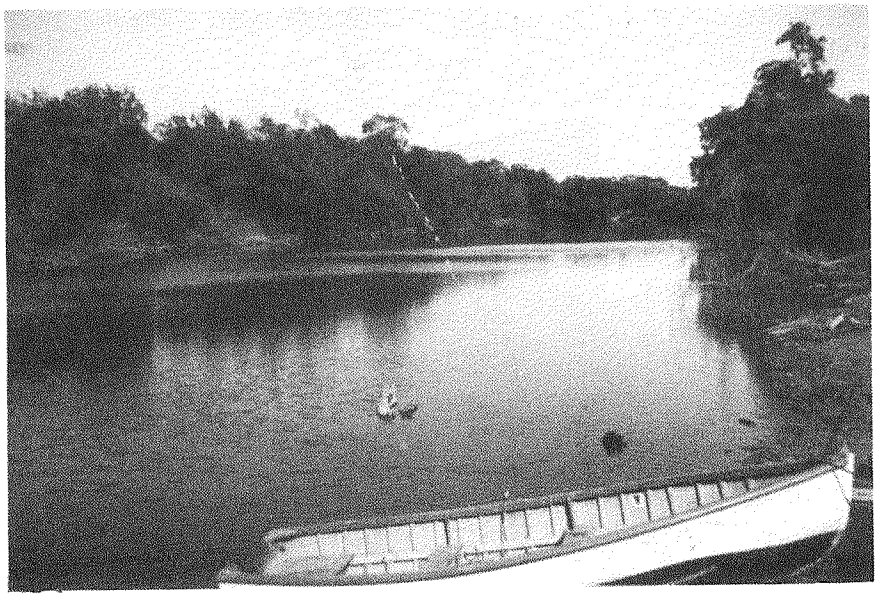
4:00 P.M. - SUMMARY - Speaker: Miles Ferris, Director of Utilities, City of Santa Rosa

4:15 P.M. - POSTER SESSION AND DISCUSSIONS

4:45 P.M. - LAGUNA WALK (Advance registration required. Sign up in Poster Room from Noon - 2:45 p.m.)

POSTER EXHIBITORS

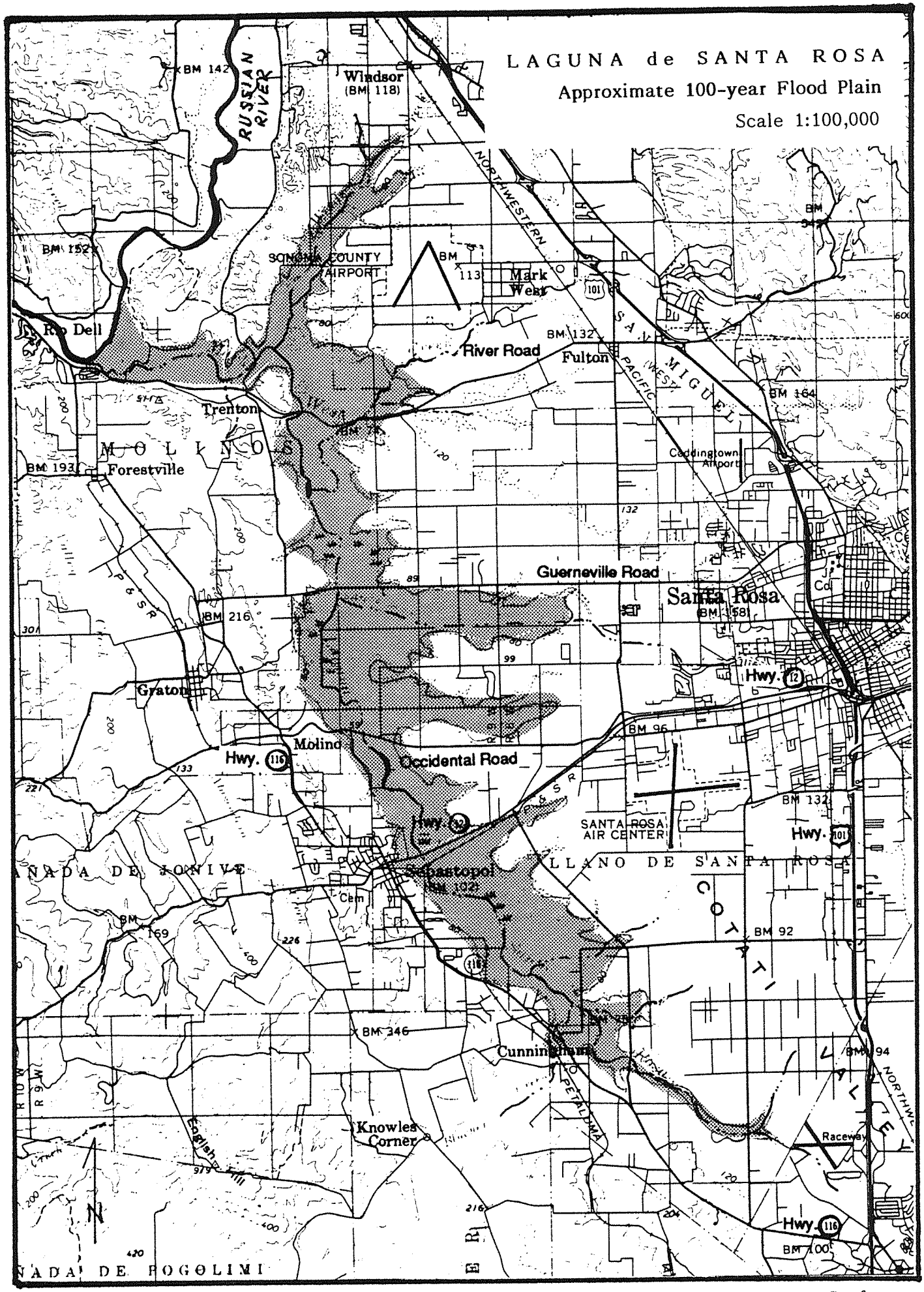
1. California Department of Fish & Game
2. California Department of Forestry and Fire Protection
3. California Native Plant Society (CNPS), Milo Baker Chapter
4. CH2M Hill/City of Santa Rosa
5. Circuit Rider Productions
6. Ducks Unlimited
7. Lescure Engineers
8. National Park Service, River & Trails Conservation Assistance
9. Peter Vilms Laguna Slide Display
10. Sonoma County Farmlands Group
11. Sonoma State University, Environmental Studies Department
12. Prunuske Chatham and Appleton Forestry Nursery
13. Western Ecological Services, Inc. (WESCO)
14. YA-KA-AMA



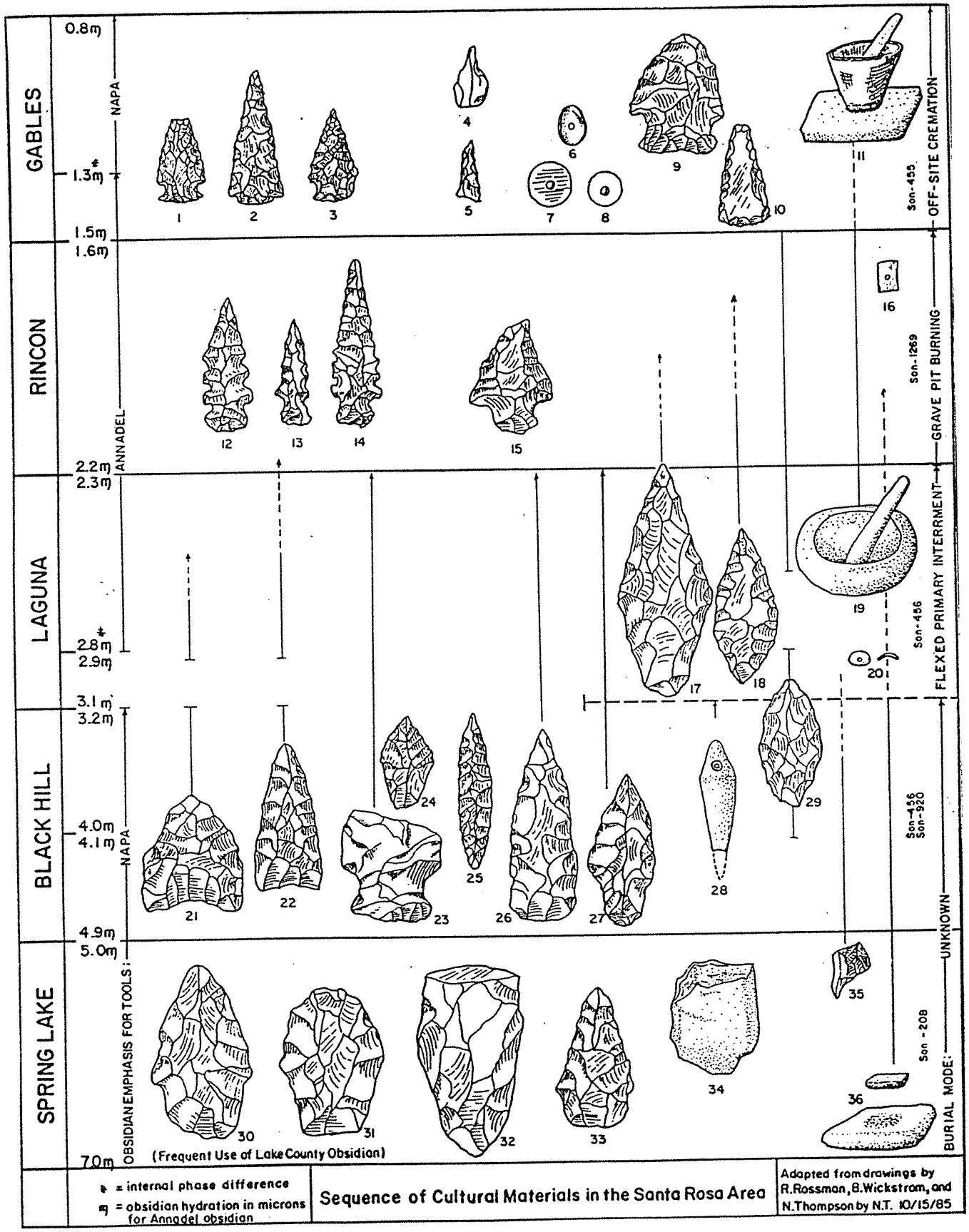
Laguna de Santa Rosa--early 1950s

Same location, 1988. Note that riparian vegetation has been removed and severe bank erosion has occurred.

(Photographs courtesy of Gary and Suzanne Nelson)



State of the Laguna Conference
Base map:USGS


GABLES
RINCON
LAGUNA
BLACK HILL
SPRING LAKE
0.8m
1.3m*
1.5m
1.6m
2.2m
2.3m
2.8m*
2.9m
3.1m
3.2m
4.0m
4.1m
4.9m
5.0m
7.0m
NAPA
ANNADEL
NAPA
OBSIDIAN EMPHASIS FOR TOOLS:
(Frequent Use of Lake County Obsidian)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
Son-455
Son-1269
Son-456
Son-456
Son-920
Son-208
OFF-SITE CREMATION
GRAVE PIT BURNING
FLEXED PRIMARY INTERMENT
UNKNOWN
BURIAL MODE:
* = internal phase difference
m = obsidian hydration in microns for Annadel obsidian
Sequence of Cultural Materials in the Santa Rosa Area
Adapted from drawings by R. Rossman, B. Wickstrom, and N. Thompson by N.T. 10/15/85

Santa Rosa Area: Significant artifact types. Projectile points only depicted to relative scale. 1.-3. Obsidian corner-notched arrowpoints; 4.-5. Chert bead drills; 6. Olivella lipped bead; 7.-8. Clamshell disc beads; 9. Obsidian knife or spear point; 10. Obisidian notchless arrowpoint preform; 11. Hopper mortar and pestle; 12.-14. Obsidian serrated, corner-notched arrowpoints; 15. Obsidian knife or spear point; 16. Olivella rectangular bead; 17.-18. Obsidian shouldered, lanceolate projectile points; 19. Bowl mortar and pestle; 20. Olivella saddle-shaped bead; 21.-22. Obsidian (or chert) concave-based projectile points; 23. Chert side-notched projectile point; 24. Obsidian small, diamond-shaped projectile point; 25. Obsidian (or chert) narrow, leaf-shaped projectile point; 26.-27. Chert stemmed projectile points; 28. Blue shist charmstone (biconically drilled); 29. Obsidian biface blank; 30.-31. Obsidian wide-stemmed projectile points; 32. Obsidian lanceolate projectile point (base); 33. Obsidian small, stemmed projectile point; 34. Basalt unifacial cobble tool; 35. Obsidian small, angular core; 36. Milling slab and hand stone.

State of the Laguna Conference

September 23, 1989

Statement of Robert F. Beach, General Manager
Sonoma County Water Agency

The Sonoma County Water Agency was created by the State Legislature in 1949 to provide water supply and flood control services for Sonoma County. In carrying out its activities in these areas of responsibility the Water Agency will both affect and be affected by the future of the Laguna de Santa Rosa. With respect to its water supply responsibilites, the Laguna is the route of an important Agency water transmission pipeline, the Russian River-Cotati intertie, and overlies a major groundwater aquifer. Regarding the Water Agency's flood control responsibilities, the Laguna is a major conduit draining most of the urban area of Sonoma County and also serves as an important offstream flood detention basin for the Russian River. In carrying out its responsibilities, the Agency is involved in the regulatory process and has acquired substantial real property interests in the Laguna and will continue to play a significant role in the Laguna in the future. Fortunately, the interests of the Agency in the Laguna are largely compatible with the goal of the preservation and enhancement of the ecosystem.

I have been asked to address a number of topics and will do so in no particular order so please bear with me if I seem to be skipping around a little bit.

Aqueduct Route

The Water Agency's largest aqueduct, the 48-inch Russian River-Cotati Aqueduct, parallels the Laguna de Santa Rosa on the east from Guernville Road to Rohnert Park. The Agency owns a 50-foot wide strip of land the entire length of the aqueduct. The right-of-way has space for a second pipeline but one is not expected to be needed, at least south of Occidental Road, in the forseeable future. If the groundwater basin underlying the Laguna is relied on to a substantial degree in the future, no second pipeline will be necessary, even between the Russian River and Occidental Road.

Flood Control Maintenance

I was asked to take about the Agency's flood control maintenance operations which affect the Laguna. These activities include the maintenance of flood control projects and the clearing of natural waterways. The Agency operates and maintains several flood control facilities that have been constructed in the Laguna. The activities involved in the maintenance and operation of these facilities may be broken into several general categories. They are as follows:

1. Landscaping. The Agency plants, prunes, sprays, fertilizes and irrigates landscaping along many of its constructed channels. Within the Laguna the Agency planted oaks, black walnuts and a willows many years ago along Santa Rosa Creek. They do just fine without any maintenance. The Agency has budgeted money this year to plant trees along the Colgan Creek Channel upstream from Llano Road.

2. Fencing. Twenty-five years ago the Agency excavated a pilot channel along the Laguna from above River Road to just below Occidental Road. That reach of channel was fenced. Most of the fence has been buried or washed away and no effort is currently made by the Agency to maintain the fencing. The Santa Rosa Channel was originally entirely fenced but the lower end is now in the same situation as the Laguna. ncing. Colgan Creek Channel is fenced and maintained to LLano Road.

3. Mowing. In areas where the Agency has planted Bermuda grass, annual mowing is necessary to control the growth and to eliminate fire hazards. Within the Laguna below Llano Road the only mowing the Agency does is along Santa Rosa Creek for a ways below Willowside Road.

4. Structural Repair. The Agency has many structures appurtenant to the channels which require work from time to time. Within the Laguna this is the case along the Santa Rosa Creek Channel and the Agency is required by its contract with the Soil Conservation Service to maintain these facilities. Below Willowside Road this work is not essential and the possibility exists that SCS would relieve the Agency of this responsibility.

5. Grading and Reshaping. Several of the channels experience very low velocities and resultant siltation. This silt must be periodically removed to restore the channel to its hydraulic capacity. The silt removal is normally accomplished by means of a drag line or Gradall operating adjacent to the channel. The material removed from the bottom is loaded into trucks and removed. The work is done during the summer. Within the Laguna below Llano Road this work is only done within the Santa Rosa Channel.

6. Debris removal. In order to keep the channels in a clean unobstructed condition it is necessary to frequently pick up and remove debris from the channels. The debris may consist of log jams, downed trees, shopping carts, tires, car bodies, and miscellaneous garbage. Most of the debris is removed by hand although use of equipment may be necessary for car bodies and other larger objects. Downed trees are normally cut up with a chain saw and removed while the small brush is run through a brush chipper and scattered.

7. Spraying. The Agency uses only herbicides approved by the County Agricultural Commissioner to control undesirable vegetation. Agency service roads are treated with a pre-emergent spray as are other landscaped areas where annual growth is a nuisance. Blackberries and new willow growth are sometimes treated with herbicides to control their growth from becoming rank. These materials are applied from a truck-mounted tank. Hoses extend from the backs of the tanks and herbicides are applied by hand-held wands. In recent years the Agency has not done this along the Laguna proper although it is done along the Santa Rosa Creek and Colgan Creek Channels.

Public Access

I will comment briefly on public access to Agency channels. Within the Laguna below Llano Road there isn't any with the exception of Santa Rosa Creek Channel. It is open to the public above Willowside Road. The problem below Willowside Road is the lack of fencing to separate the public from private lands. Along the Laguna proper there is the additional problem of physical access, which now is only via Santa Rosa Creek.

Flood Detention Basin

I was asked if the Federal Emergency Management Agency can be depended to enforce a no net fill policy in the Laguna through its Federal Flood Insurance Program. Loss of flood storage in the Laguna de Santa Rosa would cause an increase of flood elevation affecting the lands around the Laguna as well as all the lands along the Russian River from Mirabel to the Pacific Ocean at Jenner. For that reason, both the Water Agency and the Corps of Engineers support the "no net fill" concept for the Laguna that is necessary to avoid loss of flood storage. No net fill means that when land is graded the cut and fill will balance, or that cut will exceed fill. The Water Agency recommends no net fill for all Laguna land use or development proposals referred for review of drainage and flooding issues.

The Corps designated the Laguna as a floodway when they performed the Russian River/Laguna flood boundary and elevation study for FEMA. The floodway designation carries with it the requirement that no structure could be placed in the Laguna that would cause a flood elevation increase. The San Francisco office of FEMA transmitted the Corps flood study to the National FEMA office in Virginia with the Laguna designated as a floodway as recommended. San Francisco FEMA has since advised that FEMA flood study mapping standards don't allow application of the floodway designation without a floodway fringe. The floodway fringe is the area that could be filled along the edge of a floodplain provided that all such fill would not increase flood elevation more than one foot. It therefore now appears that when the FEMA flood study is issued it will allow fill to be placed in the Laguna. The scheduled date for FEMA to issue the flood study to Sonoma County for public review and comment is by September 30, 1989. That's the long answer. The short answer is no, you cant't depend on FEMA.

Future Regulation of Non-Point Source Runoff

I was also asked to comment on future regulation of nonpoint source runoff. I am going to leave agricultural runoff to the Regional Water Quality Control Board representative on the regulatory panal this afternoon. However, I would like to comment on the urban runoff situation since I do know something about it. The Federal Water Quality Act mandates EPA to regulatate urban stormwater runoff. Last December the Environmental Protection Agency issued new proposed regulations for National Pollution Discharge Elimination System Permit applications for storm water discharges. Final regulations are expected to be issued by April, 1990. Under the Federal Water Quality Act, municipalities serving a population of over 100,000 persons are susposed to file an application for a NPDES permit no later than February 4, 1992. If history is any indication, however, it will be many years before most stormwater discharges are under NPDES permits.

The State Water Resources Control Board does not necessarily have to wait for the EPA, however, and in fact they are not. The State Board adopted a Nonpoint Source Management Plan last November and in June they adopted a Workplan for Project Implementation which targeted three areas for immediate action. One of these is the San Francisco Bay watershed. The San Francisco Regional Board has already required extensive monitoring of stormwater discharge quality in Santa Clara County under State law and expects to have that County's stormwater discharges under NPDES permit well before the Federal deadline. The workplan proposes to initiate planning in San Mateo County following the pattern in Santa Clara County. The San Francisco Regional Board expects to have the entire San Francisco Bay watershed, including that part of Sonoma County which drains to the Bay, under NPDES permits by 1994. While these developments don't directly affect the Laguna, they indicate that something can be done while waiting for the nationwide effort to materialize.

Groundwater Resource

The Laguna de Santa Rosa overlays one of the principal groundwater aquifiers in Sonoma County. The Merced Formation is exposed in the uplands west of the Laguna and extends into the Santa Rosa Plain beneath the alluvial fan deposits at depths ranging from 200 to 600 feet. The Merced Formation averages about 500 feet in thickness. The formation is predominantly sandstone and has a high specific yield of from 10 to 20 percent. The aquifier represents a very substantial water resource which is currently under utilized. It also represents a large potential underground reservoir which if used conjunctively with the surface waters available from the Russian River, could in the future play a very important water supply role for the whole region. The Water Agency has long recognized its importance and has identified the Laguna as the potential site for future well

fields. The development of these well fields could involve the drilling of from 16 to 20 large wells with the capacity to produce perhaps 24 million gallons per day of groundwater. The wells could be connected to the Cotati Intertie from which treated surface water could be injected into the aquifier permitting recharge of the groundwater basin during periods of surplus Russian River flows if and when necessary.

SANTA ROSA SUBREGIONAL WATER RECLAMATION SYSTEM

Reclamation in the Santa Rosa Plain and the Laguna de Santa Rosa

The Santa Rosa Subregional Water Reclamation System provides wastewater treatment, reclamation, and disposal to the following entities in Sonoma County:

- City of Cotati
- City of Rohnert Park
- City of Santa Rosa
- City of Sebastopol
- South Park County Sanitation District
- Approximately 90 percent of the septic tank owners throughout Sonoma County

Therefore, most of the residences and businesses in Sonoma County are served by the Water Reclamation System. These communities were formerly served by their own wastewater treatment plants, which provided limited treatment and discharged year-round to the Laguna de Santa Rosa.

The Subregional Water Reclamation Utility consists of several divisions:

- Treatment (including laboratory)
- Reclamation (irrigation)
- Industrial Waste
- Maintenance

These divisions are all headquartered at the Laguna Subregional Wastewater Treatment Plant (WWTP) at 4300 Llano Road (between Highway 116 and Todd Road).

A flow of 15 million gallons per day (mgd) of raw sewage and septage is treated at the Laguna WWTP in a multi-step treatment process:

- Primary treatment (removal of grit and solids)
- Secondary treatment (95 percent removal of dissolved organic material and solids)
- Tertiary Treatment
  - Nitrification (conversion of ammonia, which can be toxic to fish, to nitrate)
  - Filtration (removal of up to 99 percent of solids and organics)
- Disinfection (removal of pathogens through chlorination)
- Dechlorination (removal of chlorine, which can be toxic to fish)

The water meets State of California Title 22 standards which means the water can be used for full body contact recreation (swimming), and can be used for unrestricted irrigation (even on vegetables consumed raw by humans). Once the wastewater is treated, it is pumped into storage ponds. In the summertime (typically May through September), the water is irrigated. In the winter discharge season (from October 1 through May 14), the water can be discharged at a rate of 1 percent of the Russian River flow (once the Russian River has reached a flowrate of 1,000 cubic feet per second -- cfs -- which usually occurs in late November or December).

The irrigation system consists of lands stretching from the Mountain Shadows Golf Courses in Rohnert Park on the east to the Laguna de Santa Rosa on the west, to River Road on the north, to Highway 116 on the south. The lands are shown on the attached map. The system consists of the following components:

- 4700 acres of irrigated lands including:
  - Approximately 300 acres of golf course, vineyard, and orchard
  - Approximately 4,400 acres of farmland (pasture, hay, and silage) of which 1200 acres is owned by the Subregional System
- Medium-sized pump station on the Subregional farms, Alpha, Brown, and Kelly
- Approximately 40 small pump stations (10-125 horsepower) owned by the Subregional System, on private farmers' lands
- Approximately 20 privately-owned small pump stations on private farmers' lands
- Irrigation pipe (above-ground portable aluminum hand-move and wheel-lines)

Besides irrigating farms, orchards, vineyards, and golf courses, the Subregional Reclamation System is responsible for wildlife habitat preservation and enhancement on its properties. Several wildlife habitat areas have been created near the Laguna on the Alpha and Kelly properties. A demonstration wetland is currently under construction on Kelly Farm which will be designed to utilize reclaimed water for wildlife habitat enhancement. These wetland ponds will also help enhance the quality of the reclaimed water before it flows into the Laguna.

Successful operations of the Subregional Reclamation System are currently dependent upon good, dry, weather in the irrigation season, and a reasonable level of Russian River flow in the winter season so that the River discharge rate of 1 percent can be met. Recently, the dry winters have required the Subregional System to exercise its Interim Contingency Plan which has allowed discharges at rates above

1 percent and up to 5 percent in each of the last several years. It is anticipated that the Interim Plan will continue to be exercised in the event of dry winters until the long-term Subregional Reclamation Alternative is in place.

In the meantime, the Subregional System uses an operations curve to help guide storage and discharge decisions so that water is discharged in the winter to avoid dry season discharges, and that sufficient water is stored in the spring for summertime irrigation. Also, storage at the end of each irrigation season is brought down as close to zero as feasible in preparation for fall season storage. Because of the weather dependency of the existing reclamation system, the operation of the system has certain challenges. Some of these challenges are as follows:

- Bringing storage levels down to minimum levels at the end of the irrigation season makes late season irrigation difficult.
- Storm damage can affect storage ponds and irrigated fields, and therefore the system's ability to irrigate.
- Operations of the system must continue during construction of improvements to the treatment and reclamation systems.

Despite these challenges, the Subregional Reclamation System has irrigated more water every year since 1985, and has reused that water so that discharges to the Russian River have actually stabilized since 1985, despite the system's increasing inflow. As in the past, the Subregional System will continue to search for new ways to safely and effectively reuse the reclaimed water.

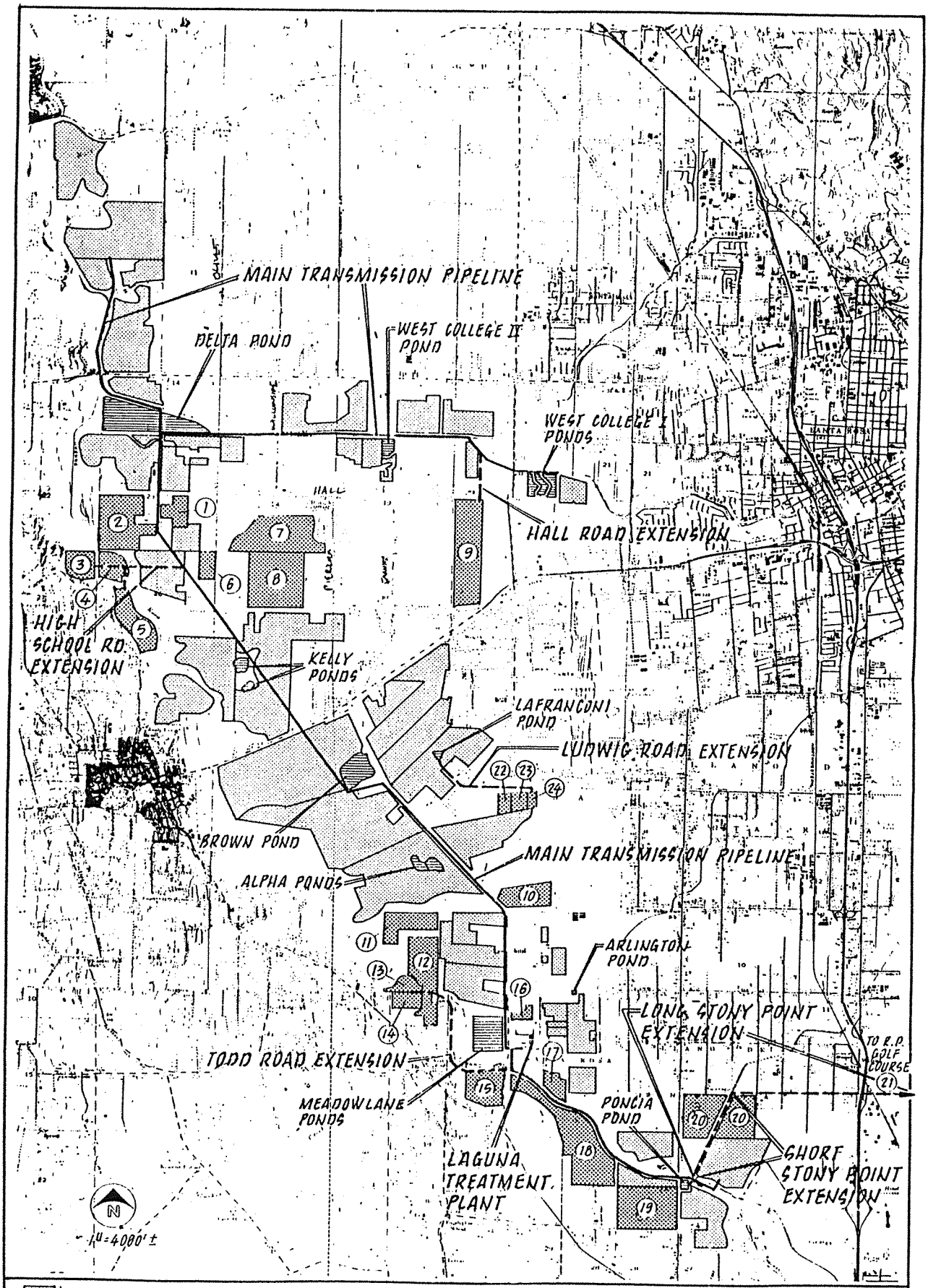


FIGURE 1

EXISTING IRRIGATED AREAS AND POSSIBLE EXPANSION SITES
WASTEWATER DISPOSAL SYSTEM

SANTA ROSA SUBREGIONAL WASTEWATER SYSTEM

CH2M HILL

F 19545.A4

STATE OF THE LAGUNA CONFERENCE SEBASTOPOL, CALIFORNIA SEPTEMBER 23, 1989

SUBJECT: THE LAGUNA DE SANTA ROSA TODAY: ITS ECOLOGY, THREATS AND RESTORATION GUIDELINES

PREPARED BY: MARCO WAALAND, M.S., GOLDEN BEAR BIOSTUDIES
2064 DENNIS LANE, SANTA ROSA, CALIFORNIA 95403

NEED FOR COMPREHENSIVE NATURAL RESOURCE PLANNING IN THE LAGUNA

Pristine wetland or polluted waterway? The Laguna has attributes of both. What the Laguna is and what it may or may not become will be decided by either neglect, or intelligent resource husbandry. We can continue the practices of the past in which the Laguna and the surrounding Santa Rosa Plains have undergone degradation from girdling of the oak trees, overgrazing, filling, channelization, wetland drainage and conversion of sensitive habitats to irrigated pasture. Or, we can institute a "land ethic", in which respect for the land is a dominant attitude (Leopold, 1966). The Laguna is currently being considered for a parkland, open space, a wildlife refuge, and created and restored wetlands for wildlife enhancement. There are also residential, commercial, and industrial development pressures on lands along the Laguna. Agricultural interests would like to keep most of the land in long-term agricultural production. All these competing interests can be reconciled by developing a comprehensive natural resource management plan incorporating multiple use in appropriate agricultural areas, establishment of nature reserves and protecting the landscape with effective land use policies.

WHAT AND WHERE IS THE LAGUNA?

The Laguna is a flat, low-lying area between Santa Rosa and Sebastopol. It is a complex of riparian forests and marshlands which are subject to frequent flooding. On higher ground, the oak savanna and vernal pools of the Santa Rosa Plains exist amongst farmlands. The greater Laguna area lies roughly between Highway 116 and Sebastopol on the west and a border on the east roughly defined by a north-south boundary composed of connections between Llano Rd, Irwin Lane, Willowside Road and Olivet Road from Highway 116 on the south to Mark West Creek on the north. The Laguna drains a basin of 250 square miles (160,000 acres) that includes the cities of Cotati, Rohnert Park, Santa Rosa and Sebastopol. Waters gathered from the Mayacamas Mountains, Sonoma Mountain, Bennett Peak and the Cotati Valley flow through tributaries such as Santa Rosa Creek, Roseland Creek, Copeland Creek, Mark West Creek, Matanzas Creek and Blucher Creek into the Laguna.

SIGNIFICANCE OF THE LAGUNA

The Laguna is the second largest wetland complex in Northern California west of the Great Valley and supported over 1,000 acres of perennial wetlands in the recent past (McBride, 1945, in Cardwell, 1958). Less than one fourth of these original wetlands remain. Yet, there are still wide expanses of riparian forest, permanent freshwater marsh, seasonal wetlands. Valley oak wooddland and vernal pools stretch well beyond the Laguna channel into the adjacent Santa Rosa Plains. Because of the drastic losses in wetlands on a local, statewide and national scale, the Laguna offers a significant resource for this critically diminished habitat. So many vernal pools have been lost that a number of those remaining in the Laguna are a major repository of endangered plant species. And the valley oak, which is as much a Sonoma County symbol as vineyards and the redwood, has greatly declined locally and is becoming threatened statewide. The last significant stands of valley oaks in the Cotati Valley are found in the Laguna.

The Laguna acts a huge reservoir during floods and stores 80,000 acre- feet of water during the 100 year flood event. This retention capacity translates into an 11 foot reduction of the flood peak at Guerneville on the Russian River. The Laguna provides an important agricultural resource with dairy operations as the dominant industry. Vineyards and small ranchettes are becoming more abundant. These dispersed, extensive land uses provide an open space greenbelt resource unparalleled in the greater San Francisco Bay Area.

THREATS TO THE LAGUNA

At times in the past, discharges of effluent have compromised the water quality of the Laguna. However, the present quality of effluent is certified for recreational use, and is superior to the water present in the Laguna during the dry season. Non-point pollution sources that originate from oil and grease on roadways, detergent from washing cars, and pesticides, fertilizer and manure from farm operations, pose an increasingly significant threat to Laguna water quality.

Channelization and flood control projects degrade sections of the Laguna and its tributaries to service the drainage needs of rapid urban expansion. The result is open, exposed channels in which water temperature increases and vegetation is subject to repeated herbicide application and removal. The results are disaterous for riparian wildlife. Previous riparian forests and marshlands are drained to increase the growing season for row crops. All these sources of disturbance have resulted in the loss of hundreds of acres of wetlands. Irrigation and heavy grazing threaten existing oak trees and prevent regeneration of replacement trees. Vernal pools are irrigated all summer and become small marshes that are often filled or drained by farmers and the mosquito abatement district.

Lastly, the incredible rise in land values has increased the rate of development of small ranchettes and rural residences in the Laguna. These changes in land use that provide a monetary return agriculture cannot compete with. The net result of this piecemeal, short-term land use polanning is a disjunct, fragmented Laguna ecosystem that is teetering on the brink of collapse.

BIOLOGICAL ISSUES IN THE LAGUNA

Endangered Species. The Laguna hosts no less than 16 rare or endangered species (Appendix A). Biological diversity in the Laguna is essentially unprotected with many competing interests calling for increased drainage, less stringent floodplain zoning, and the perennial elimination of County policies aimed at restricting clearing of riparian forests. The Department of Fish and Game (DFG) is hampered by ineffective codes and statutes as well as understaffing and tiny budgets relative to its mandate as trustee of our common resources. Decision-makers have granted the lowest priority to biotic resources in the public trust as a means to promote monetary gains in the private sector. In short, the basic recipe for extinction of species is intact and functioning in the Laguna area.

Because we have borrowed from our future biological inheritance, the riparian forests which once harbored the State listed Endangered California yellow- billed cuckoo, are gone. The cuckoo was last sited in the Laguna in the 1960's. This bird is a barometer of the health of a riparian ecosystem, existing only in extensive stands of mature riparian forest. Channelization projects and agricultural clearing have eliminated this bird, but restoration of riparian habitat can allow for re-introduction of this bird into the Laguna. Another barometer of the Laguna's health from times past, the California freshwater shrimp, hasn't been seen for decades. The original description of this State and Federally listed Endangered species came from the Laguna (Eng, 1981). Restoration of the aquatic and riparian habitat and improvement in water quality will allow re-introduction to the Laguna. The Federally Listed Endangered Bald Eagle and Peregrine Falcon utilize prey in the wetlands of the Laguna. The state -listed threatened sandhill crane can be found in the Laguna during migration. The Laguna's burrowing owl and the marsh harrier are "bird species of special concern" to DFG because habitat is in short supply. Thousands of migratory waterfowl and shorebirds depend on the Laguna, but their numbers are declining here and regionally because of habitat loss.

There are no less than five Endangered plants in the Laguna that are State listed and being considered for emergency federal listing by the Fish and Wildlife Service (FWS). Rare and endangered plant species are listed in Appendix A. Species of primary concern are those listed by DFG as endangered or rare. These species are white sedge, Burke's goldfields, Sebastopol meadowfoam, many flowered navarretia and Hoover's semaphore grass. Plants appearing on the California Native Plant's Society's (CNPS) List 1 qualify them as species of primary concern because CEQA guidelines state unlisted species which deserve such status are to be considered as rare (Smith and Berg, 1988). These species are Baker's blennosperma, swamp harebell, Gairdner's yampah and showy Indian clover, a species considered to be extinct.

The remaining plants, dwarf downingia, Douglas' pogogyne and Lobb's buttercup are considered species of secondary concern because they are not officially recognized by DFG or FWS. These species appear on CNPS List 4 because of their abundance or their tenuous taxonomic or rarity status. The valley oak (Quercus lobata) has recently been added to this list. These plants may not be technically rare, but are actually uncommon, restricted to special substrates (i.e. vernal pools), patchily distributed or potentially threatened by various land uses or human activities.

Wetlands and Wildlife. At one time there was over 1,000 acres of marshes and riparian forests stretching from Rohnert Park to the Russian River along the Laguna (McBride, 1954, in Cardwell, 1958). Geese and waterfowl once congregated in the Laguna in incredible numbers (Marryat, 1855). Only 272 acres of riparian forest remain, a decrease of at least 75% from what was originally present (Waaland, 1989). Marshlands have largely disappeared also, with extensive areas once existing under what is now Rohnert Park. Despite these losses, the Laguna wetlands still provide essential habitat for many wildlife species.

The Laguna channel is important as a fishery resource. Water quality must be maintained to provide for the successful migration of steelhead. Further improvements can restore the Laguna as rearing habitat for salmonids. The endangered California freshwater shrimp once thrived in the Laguna's waters. Several ponds, or small lakes, occur along the length of the channel attracting waterfowl and providing fish habitat during the dry summer. Perennial marshes occur along the length of the channel, broadening out into the floodplain in the flat central area of the Laguna. These marshes provide critical habitat for resident and migratory ducks, waterfowl and shorebirds. The seasonal wetlands of the Laguna expand far beyond the channel during the rainy season and occupy all the low-lying areas and vernal pools dotting the Santa Rosa Plains. These seasonal wetlands are critical habitat for migratory waterfowl and winter resident bird species. A host of rare and endangered plant species also occur in vernal pools. Many of the largest and most significant remaining vernal pools are located on the lands which slope down to the floodplain, an important reason for expanded biotic resource boundaries in the Laguna area.

Adjacent to the Laguna channel, in the vicinity of Highway 12, and from Occidental Road north to Mark West Creek, a well developed riparian forest commonly extends 1000 feet laterally from the channel. Only a fraction of this rare community remains in the Laguna, making this habitat increasingly sensitive to further losses. It is an integral part of the Laguna drainage which historically flowed through the forest as a shallow swamp into the summer. It provided habitat for wood ducks, herons, egrets, and the endangered California yellow-billed cuckoo. Extensive stands of this type are largely gone in the County because of agricultural clearing and channelization projects. Restoration of a significant acreage of riparian forest is necessary to re-establish a population of yellow-billed cuckoo's (Reiner and Griggs, 1989). Successful re-introduction of this bird to the Laguna will provide an index of the return of the Laguna as a healthy ecosystem. Of increasing importance in the future will be the role wetlands play in improving water quality for non-point sources of pollution.

Oak Savanna. A unique and increasingly threatened community found in the Laguna area is the oak savanna. In the 1850's oaks in the Santa Rosa Plains were intentionally killed by pioneers who girdled the trees (removed all living tissue around the trunk) (Taylor, 1951). Many acres of oak woodland were destroyed to clear fields for planting grains and row crops. The majestic valley oaks once formed a relatively dense woodland across the entire Santa Rosa Plains, but the last significant stands are restricted to the Laguna area. The previously summer-dry soils around these trees remain constantly wet due to irrigation with effluent. Cattle have

shrubby understory and graze virtually all oak seedlings. As a result, mature trees are of reduced vigor and are not regenerating because of a debilitating root rot fungus and an absence of seedling establishment. Protective policies can ensure proper land management around these trees and allow young trees to regenerate.

PRESERVATION OF BIOLOGICAL DIVERSITY IN THE LAGUNA

In a state where 90% of historic wetlands have been lost (Airiola and Messick, 1987) and local wetlands are undergoing drainage and fill for development, vineyards and irrigation, the Laguna offers the opportunity to use conservation for the protection and enhancement of a critical habitat before it is lost. Conservation of the Laguna's natural resources will make a significant local contribution to solving ecological problems existing at a statewide, national and global scale. Loss of wetlands and clearing of forests has reached alarming proportions that have prompted President Bush to make a national policy of preservation and restoration of our nation's wetlands. The California Department of Fish and Game has instituted a program to increase wetland acreage in the state by 50%. The continuing decline in oak woodlands statewide has prompted the California Department of Forestry to conduct statewide research into the causes for this loss, and the means to reverse this trend.

The problems facing the Laguna can be solved by developing and implementing local solutions. Increased planting of riparian forests and oak trees will aid in reducing the global build-up of carbon dioxide (the culprit in the greenhouse effect) and provide habitat for endangered species. Planting oaks can ensure that generations to come can marvel at the majestic trees. Expanding marshlands can aid in rebuilding the declining waterfowl and shorebird populations. To this end, Congressman Bosco has proposed a National Wildlife Refuge in the Laguna. The City of Sebastopol is planning a Laguna park. The City of Santa Rosa has implemented conservation oriented management on some of its wastewater irrigation farms and is experimenting with wetland creation. And the Department of Fish and Game has purchased or bought easements on several parcels of critical habitat in cooperation with local landowners.

A Laguna de Santa Rosa Ecological Reserve

The Laguna has been recognized as an exceptionally important resource for many years. As early as 1945, the U.S. Fish and Wildlife Service was conducting field investigations in the Laguna (McBride, 1945, in Cardwell, 1958). The Laguna de Santa Rosa Environmental Analysis and Management Plan documented natural attributes and recognized the need for government action to protect the resource (de Mars, et al, 1977). The Laguna Advisory Committee Report to the City of Sebastopol revived the issue of Laguna conservation and triggered action by the City of Sebastopol to begin planning a Laguna park (LAC, 1988). A spin-off of this advisory committee report was a series of recent actions regarding the Laguna, including the Sebastopol-Laguna Committee which organized The State of The Laguna Conference. The County of Sonoma has also determined the Laguna to be a priority by enacting the Laguna de Santa Rosa Conservation Program in its recent General Plan Update (Sonoma County, 1989). The culmination of all this interest resulted in Congressman Doug Bosco introducing a bill, H.R. 2548, to provide for the establishment of the Laguna de Santa Rosa National Wildlife Refuge (LTAC, 1989). Several thousand acres could be purchased from willing sellers if the bill passes.

There exists an immediate and compelling rationale for using federal funds to acquire lands within the Laguna de Santa Rosa as a National Wildlife Refuge. Despite the loss of over 75% of wetlands in the Laguna, significant areas of wetlands still exist, but are under increasing threat. Although the Department of Fish and Game has purchased lands and easements in the Laguna, only the Federal government has the resources capable of providing the type of sustained, extensive land acquisition program necessary to halt degradation of the Laguna ecosystem. The current Congress and Administration have made wetland preservation and restoration a national goal. The Laguna's regional and statewide importance as a wetland and its location in the Pacific flyway qualifies the Laguna as a high priority for federal protection.

Biogeography and Preserve Design

Criteria for optimal design of endangered species preserves or wildlife management areas are derived from the principles of island biogeography (Soule and Wilcox, 1980; Frankel and Soule, 1981). An island is defined as a discrete patch of unique habitat, such as a vernal pool or riparian forest fragment, that is isolated from similar habitat because the surrounding matrix (e.g., water, grassland) is completely different. Studies of species on islands indicate a species requires a minimum geographic area of adequate size for a population to persist (MacArthur and Wilson, 1963, 1967). Genetic diversity is also maintained. The probability of extinction increases as island size decreases because fewer individuals are present. This same principal holds for wildlife in the increasingly small fragments of the Laguna's riparian forest. As forest fragments become increasingly scarce, the chance of receiving propagules from distant islands of riparian habitat is diminished. Eventually, the lack of recruitment to replenish those individuals lost to natural mortality or catastrophic events such as fire results in local extinctions, such as occurred with the yellow-billed cuckoo, the freshwater shrimp and showy Indian clover. Application of these principles to preserve design incorporates features based on the following relationships:

(a) large reserves better than small
(b) a single, large reserve better than four smaller ones of equal area
(c) a circular reserve is better than any other shape
(d) mutually adjacent reserves are better than linearly arranged
(e) close replicate reserves are better than distant ones
(f) smaller but connected reserves are better than separate, unconnected reserves of equal area (MacMahon, 1979).

A Conceptual Plan for a Preserve System in the Laguna de Santa Rosa Santa Rosa Ecosystem

A successful preserve system in the Laguna de Santa Rosa Ecosystem would be comprised of a cluster of closely spaced reserves of as large an acreage as possible (see Figure 1, at end of report). The marsh and riparian forest reserves would be located largely within the 100 year floodplain of the Laguna (LTAC, 1989). Vernal pool reserves would be located where the centroids of an endangered species distribution occurs naturally, mostly in the Santa Rosa Plains of the Cotati Valley. A vernal pool preserve plan, should locate a number of preserves where the remaining high priority and high quality sites remain (Waaland et al, 1989).

The process of making this preserve system a reality would involve the initial step of seeking willing landowners for purchase or easements to maintain existing uses. The most logical approach would be to focus on the high priority sites first. Once this avenue has been fully explored, the secondary priority sites should be investigated. Low priority sites should be considered as they become available, or mitigated in such a way that the rare plant resource make a net gain.

RESTORATION AND MANAGEMENT MEASURES FOR ENHANCEMENT OF LAGUNA DE SANTA ROSA HABITATS

The following recommendations are proposed land management measures which can aid in the conservation and restoration of some of the sensitive biotic resources of the Laguna de Santa Rosa.

Riparian Habitat

1. Avoid mowing, discing and irrigation within 100 feet of the Laguna channel and within 50 feet of its major tributaries.

2. Seek funding or mechanism to restore the riparian environment by developing and implementing a riparian tree planting program using appropriate resource agency staffs, volunteer labor and professional ecological guidance.

3. Where grazing occurs, install, repair and maintain fencing to 100 feet from the edge of the channel for the Laguna de Santa Rosa and 50 feet from the edge of the channel for major tributaries.

4. Minimize vegetation removal and seek alternatives to herbicide spraying in agency maintained right-of-way and channels downstream of the Llano Road bridge and Willowside Road bridge.

5. Allow the Laguna channel north of Occidental Road to establish a natural course.

7. For privately owned land: seek funding to develop a fencing and tree planting program that will:

a) inventory and contact landowners along the Laguna and determine which would be willing to participate,

b) compensate landowners for any loss of forage of crops removed from production

c) provide money for the purchase of planting materials and fencing and

Rare Plant Locations

1. Where rare plants are present, avoid irrigation, discing or mowing within a 75 foot perimeter. Rare plant habitat in the Laguna is typically vernal pools, although marshes also support several rare species.

2. Conduct a botanical survey for rare plants beforehand at the appropriate time of year where changes in agency sponsored agricultural practices are proposed. Mitigate to acheive no net loss of resource function or value.

Vernal Pools

1. Irrigation with reclaimed effluent should be restricted where vernal pools occur. This measure alleviates mosquito abatement problems and maintains this unique community in a natural state. Close adherence to this policy will prevent the virtual elimination of vernal pools in the Laguna area.

2. Any proposed soil disturbance or filling in vernal pools will be reviewed by the U. S. Army Corps of Engineers for compliance with Section 404 of the Clean Water Act and DFG for consistency with their policies and mitigation measures.

3. Sonoma County Planning Department should extend "Biotic Resources" zoning to areas of significant vernal pools.

Oak Savanna

1. Avoid reclaimed water irrigation, mowing or soil compaction within 10 feet of the drip line of valley oaks. This practice will aid in keeping the effects of the root rot fungus in check and provide a refuge for wildlife otherwise killed during mowing operations. The City of Santa Rosa has instituted this policy on one of its farms.

2. Develop a program to help maintain the oak savanna in perpetuity by planting five seedlings for every stump and snag and living tree. Seek funding and a mechanism for instituting this program on public and private lands.

3. Where appropriate, allow non-hazardous snags and fallen branches to persist. These elements are essential habitat for cavity nesters and associated wildlife species.

Constructed Wetlands

Utilize reclaimed water to construct marshes to enhance and restore wildlife habitat in appropriate locations while maintaining floodplain capacity..

Wetlands provide a number of important functions including high plant productivity, temporary water storage, trapping of suspended material, nutrient cycling, toxin cycling and soil anchoring. In turn, wetlands are valued for the ecological services they render, such as food and habitat supply, food chain support, floodpeak reduction, groundwater recharge, water quality improvement and shoreline erosion control. Increasingly, wetlands are viewed as a cultural resource providing recreational opportunity and aesthetics.

The use of constructed wetlands for wastewater treatment has received much attention recently because marshes have the potential to provide low cost treatment and polishing of effluent while restoring natural wetland functions and values in areas where they have been depleted. Successful systems have been developed in a number of California cities including Mountain View (Demgen and Nute, 1979), Arcata (Allen et. al., 1987) and San Diego, (*Gersberg et. al., 1988). The Environmental Protection Agency (EPA) encourages the use of constructed wetlands through the innovative and alternative technology provisions of its construction grants program (EPA, 1987).

Constructed wetlands can be designed primarily for wastewater treatment or environmental enhancement. Treatment wetlands are engineered to maximize the biological reactions that reduce levels of regulated pollutants. These wetlands offer wildlife habitat as a secondary, incidental function. Enhancement wetlands use treated effluent as the basis for wetland habitat development with the corollary function of effluent polishing. An important function of wastewater wetlands in the Laguna de Santa Rosa will be to establish the degree of removal of metal, organic toxins and viruses. This data would address regulatory concerns regarding rates and seasonality of discharge. It would also demonstrate the reliability, effectiveness and merit of wastewater marshes.

STEPS TOWARD INSTITUTING A LAND STEWARDSHIP PROGRAM IN THE LAGUNA DE SANTA ROSA

1. Institute the measures in the "Guidelines" described above soon as possible.

2. Develop a biotic resources database and inventory consisting of the following:

a) All known vernal pools and rare plants locations. Seek funding for a comprehensive vernal pool survey which identifies and maps the remaining rare plant locations in the Laguna. This study is currently in progress (Waaland et al, in press).

b) All wetlands and critical wildlife habitat.

c) The distribution of the oak savanna. Initiate research to study the effects of irrigation on vigor of existing trees and establishment of seedlings.

d) Locations where created wetlands would appropriately be developed. This study is currently in progress (CH2M Hill, 1989).

3. Create a Laguna de Santa Rosa Conservation Council to act as the lead agency for direction, guidance and coordination in various conservation and restoration efforts. This group can be non-profit or a unit of an existing governmental body. The Council will hire a full, or part-time staff position to be known as the Laguna Resource Ecologist for the implementation of the practices above, the gathering and research of biotic resources information and the development of a Laguna Management Plan.

4. Encourage the involvement of the Sonoma State University faculty and students in the study and management of the natural resources of the Laguna.

5. Establish a volunteer land steward program to integrate the skills and energy of interested citizens in the day to day management and restoration of the Laguna so as to facilitate a more in depth understanding of this resource to the community at large.

6. Seek ways to involve the children of the public schools in study of the Laguna to foster a greater respect and appreciation for natural resources to be carried into the future.

REFERENCES

Airola, A. and T.C. Messick. 1987. Sliding toward extinction: the state of California's natural heritage, 1987. Prepared by Jones and Stokes, Sacramento, Calif. for The Nature Conservancy, San Francisco, California.

Allen, G.H., R.A. Gearhart and M. Higley. In press. Renewable natural resource values by use of treated wastewater within Arcata treatment and disposal system. IN: Proceedings of Water Reuse Symposium IV. American Water Works Research Foundation. August 2-7, 1987, Denver, Colorado.

CH2M Hill. 1989. Santa Rosa Sub-regional water reclamation system, long-term detailed studies, phase 1, development of a reclamation alternative. Volume 4: Wetlands creation. Prepared for City of Santa Rosa, Calif.

de Mars, J., M. Johnson, T. Lipschutz, G. Madrigal and M. Roberts. 1977. Lagunade Santa Rosa environmental analysis and management plan. Environmental Studies Department, Sonoma State University, Rohnert Park, Calif.

Demgen, F.C. and J.W. Nute. Wetlands creation using secondary treated wastewater. IN: Proceedings of Water Reuse Symposium I. American Water Works Research Foundation. March,1979. Washington, D.C.

Eng, L.L. 1981. Distribution, life history, and status of the California freshwater shrimp, Syncaris pacifica (Holmes). Inland Fisheries Endangered Species Program, Special Publication 81-1. Califoenia Department of Fish and Game, Sacramento.

Environmental Protection Agency (EPA). 1987. Report on the use of wetlands for municipal wastewater treatment and disposal. Office of Municipal Pollution Control, EPA, Washington D.C. Document # EPA 430/09-88-005.

Gersberg, R.M. In press. Gravel marshes. IN: Proceedings of the International Conference on Constructed Wetlands for Wastewater Treatment. Tennessee Valley Authority. June 13- 17, 1988. Chattanooga, Tennessee.

Laguna Advisory Committee. 1988. Report to the City of Sebastopol, Calif.

Laguan Technical Advisory Commitee. 1989. Fish and wildlife restoration of the Laguna de Santa Rosa, Sonoma County Calif. For Congressman Doug Bosco, Santa Rosa, Calif.

Leopold, Luna. 1966. A Sand County Almanac. Ballantine Books, New York.

Marryat, F. 1855. North Bay Jounal and Visits to Gold Rush San Francisco. Clio Publications, Santa Rosa, Calif.

MacMahon, J.A. 1979. Thoughts on optimum size of nature reserves based on ecological principals. IN: Selection, Management and Utilization of Biosphere Reserves. Proceedings of U.S.-U.S.S.R. Symposium on Bioshere Reverves, Moscow, U.S.S.R., May, 1976. J. F. Franklin and S. L. Krugman, Eds. General Technical Report PNW-82, Pacific Northwest Forest and Range Experiment Station, U.S. Forest Service, Corvallis, Oregon.

McBride, B. Field investigation of drainage of Laguna de Santa Rosa, Sonoma County, Calif.:U.S. Fish and Wildlife Service. IN: G.T. Cardwell. 1958. Geology and groundwater in the Santa Rosa and Petaluma Valley areas, Sonoma County Calif. U.S. Geological Survey Water Supply Paper 1427. Government Printing Offic, Washington, D. C.

Reiner, R. and T. Griggs. 1989. THe Nature Conservancy undertakes riparian restoration projects in California. Restoration and Management Notes 7:1, pp.3-8. University of Wisconsin Press, Madison.

Smith, J.P. and K. Berg. 1988. Inventory of rare and endangered vascular plants of California. CNPS Special Publication #1, 4th Edition. California Native Plant Society, Sacramento, Calif.

Sonoma County. 1989. General Plan. Sonoma County Planning Department, Santa Rosa, Calif.

Taylor, B. 1951. New Pictures From California. Biobooks, Oakland Claif.

Waaland, M.E. 1989. Technical memorandum #1: Baseline evaluation of Laguuna de Santa Rosa wetlands and natural resources. IN: CH2M Hill. 1989. Santa Rosa Sub-regional water reclamation system, long-term detailed studies, phase 1, development of a reclamation alternative. Volume 4: Wetlands creation. Prepared for City of Santa Rosa, Calif.

Waaland, M.E., R. Thompson and J. Vilms. In press. Santa Rosa Plains endangered plant protection program. Prepared for the County of Sonoma and California Department of Fish and Game. Circuit Rider Productions. Windsor, California.

Appendix A

Rare, threatened, or endangered plants found in the Laguna de Santa Rosa

Scientific Name	Common Name	DFG	FWS	CNPS
Blennosperma bakeri	Baker's blennosperma		C2	1B
Campanula californica	swamp harebell		C2	1B
Carex albida	white sedge	E	C1	1B
Downingia humulis	dwarf downingia		C3c	4
Lasthenia burkeii	Burke's goldfields	E	C2	1B
Limnanthes vinculans	Sebastopol meadowfoam	E	C2	1B
Navarretia plientha	many flowered navarretia	E	C2	1B
Perideridia gairdneri spp. gairdneri	Gairdner's yampah		C2	1B
Pleuropogon hooverianus	Hoover's semaphore grass	R	C2	1B
Pogogyne douglasii spp. parviflora	Douglas' pogogyne		C2	4
Ranunculus lobbii	Lobb's buttercup			4
Trifolium amoenum	showy Indian clover		C2	1A

Endangered animals of the Laguna de Santa Rosa

Coccyzus americanus occidentalis	California yellow-billed cuckoo	E	
Haliaeetus leucocephalus	bald eagle	E	E
Falco peregrinus anatum	American peregrine falcon	E	E
Syncaris pacifica	California freshwater shrimp	E	E

1. DFG = California Department of Fish and Game designation:
   - R = Rare
   - E = Endangered

2. FWS = U.S. Fish and Wildlife Service designation:
   - C1 = Enough data on file to support Federal listing.
   - C2 = Threat and/or distribution data insufficient to support Federal listing.
   - C3c= Too widespread, or not threatened.

3. CNPS = California Native Plant Society designation:
   - 1A = Plants presumed extinct in California.
   - 1B = Plants rare and endangered in California and elsewhere.
   - 4 = Plants of limited distribution (a watch list).

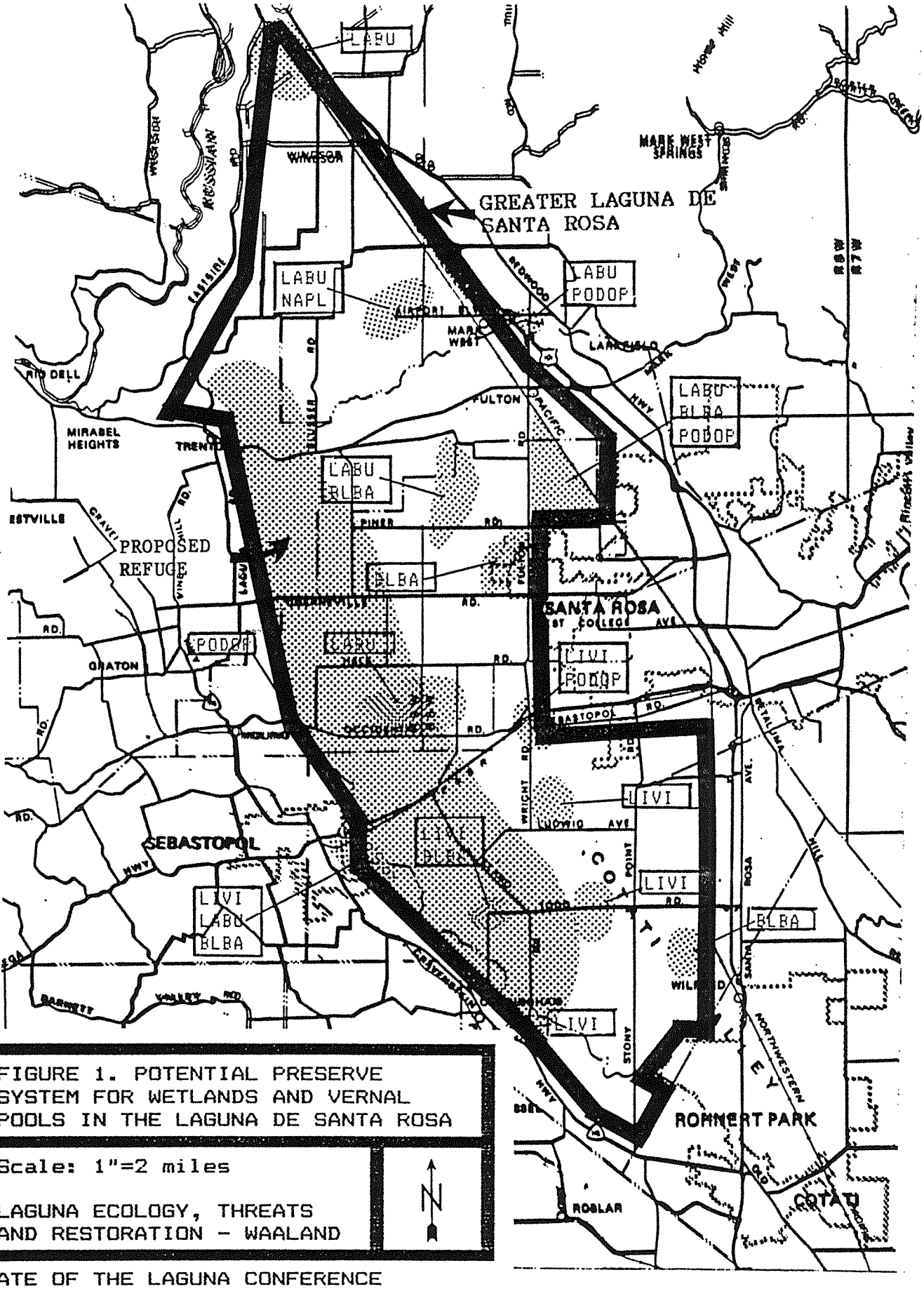


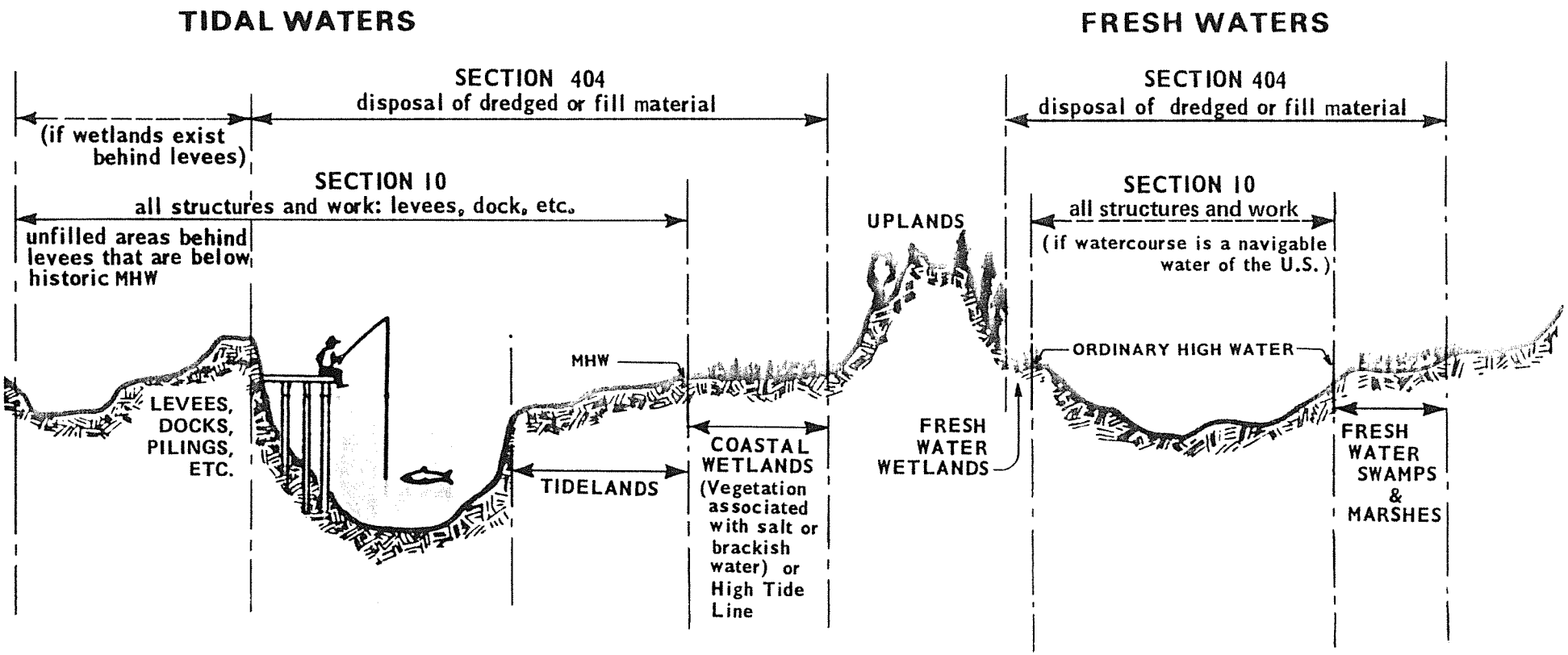
FIGURE 1. POTENTIAL PRESERVE SYSTEM FOR WETLANDS AND VERNAL POOLS IN THE LAGUNA DE SANTA ROSA

Scale: 1"=2 miles

LAGUNA ECOLOGY, THREATS AND RESTORATION - WAALAND

STATE OF THE LAGUNA CONFERENCE
SEBASTOPOL 9/23/89

CORPS OF ENGINEERS REGULATORY JURISDICTION



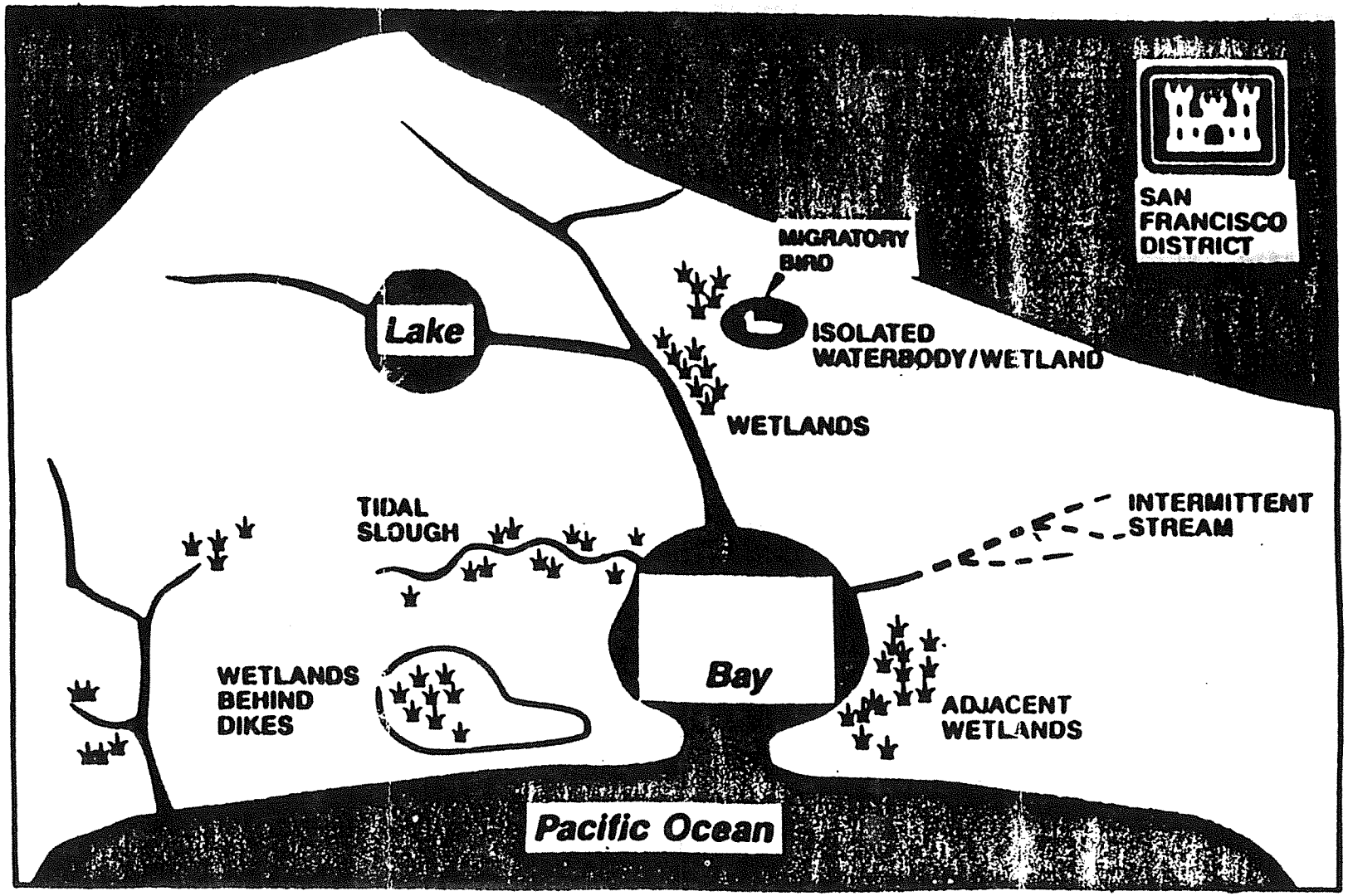
NOTE:

IN ADDITION TO SECTIONS 10 AND 404 JURISDICTIONS, THE CORPS REGULATES THE TRANSPORTATION OF DREDGING MATERIAL FOR THE PURPOSE OF DISPOSING INTO OCEAN WATERS (SECTION 103).

United States Army Corps of Engineers
...Serving the Army
...Serving the Nation

San Francisco District

Waters of the United States
(Section 404 Clean Water Act)



U.S. FISH AND WILDLIFE SERVICE

WETLAND POLICY

Wetlands provide important fish and wildlife benefits as well as other significant functions (flood control, water quality maintenance, water supply, recreation, scientific research) to the nation. The Fish and Wildlife Service has long recognized the importance of wetlands to waterfowl, other migratory birds, fish, and wildlife. Destruction of wetlands eliminates or reduces these values. It is in the public's best interest to protect wetlands and maintain these values for this and future generations.

Wetland Definition

For the purposes of this policy, wetlands are defined according to "Classification of Wetlands and Deepwater Habitats of the United States", Cowardin, et al., December 1979, FWS/OBS-79/31 (Service Admin. Manual, 30 AM 10.0).

Other Federal, State and local agencies should be encouraged to use this system. Use of the Service's wetland classification system assists in National consistency, especially through use with National Wetlands Inventory products.

Wetland Losses

Wetlands continue to change due to both natural processes and human activities. In the lower 48 states, about 46% of the nation's original wetland acreage remain (99 million acres out of 215 million acres). The conversion of wetlands for agriculture, residential and industrial developments, and other uses is a continuing problem. Between the mid-1950's and the mid-1970's, there was a net loss of 9 million acres of wetlands or an annual net loss of 458,000 acres in the conterminous United States. At least 95% of actual wetland losses over this period were due to man's activities.

Within Region 1 significant wetland losses have occurred. For example, total wetland losses in California are estimated to be 91% (96% in the Central Valley and 70% along the coast). Within Washington, there has been a 70% loss of tidal marsh for eleven Puget Sound river deltas and over a 50% loss of Willapa Bay tidal marsh. Coos Bay, OR has lost 85% of its marsh and other Oregon estuaries have sustained losses of 50% of the original marsh and tidal flats. Within the Great Basin there are similiar trends. The Carson Lake, NV area historically supported 24,000 acres of emergent marsh; in 1978 only 350 acres remained; the Lahontan Valley had a decline of 31,445 acres (65%) and a 75% decline in open water acreages compared to a base year of 1972. For these reasons, it is imperative that HR aggressively pursue protection of all wetland types.

Wetland Protection Policy

It is regional policy to view wetland degradation or losses as unacceptable changes to an important national resource (generally considered to be Resource Categories 1, 2 or occasionally 3 of the Service's Mitigation Policy). As such, it is the goal of this Region to insure that no net loss (acreage or value, whichever is greater) of wetland habitats occur. Development proposals adversely impacting wetlands generally will be discouraged unconditionally at the Field Office level. To ensure Regional consistency, any recommendations (negotiations) which would result in a net loss of wetland habitat acres or values must have Assistant Regional Director-Habitat Resources concurrence.

All of the following criteria must be met for concurrence:

1. The site is not in the Service's Resource Category 1.

2. The area is not used by nor provides habitat for any threatened, endangered, or unique species.

3. The proposed work is water dependent (refer to Regional Policy EN-8, Water Dependency Considerations).

4. There are no feasible means to mitigate at or near the project site nor to restore or manage the site as a wetland.

5. The area to be destroyed exhibits no unusual fish and wildlife values and is isolated from other wetlands relative to these values, to other functional values, and to any hydrologic connection.

This policy applies, but is not limited, to Service involvement in federal projects, permits and licenses, RCA, NEPA, area-wide planning, technical assistance, and all other HR activities.

Regional Director Richard D. Myshak

Date 10-22-85

From: California Permit Handbook

Screening Index

State Agency Involvement

To determine quickly the state permits required for a project, ask the following questions and refer to the table:

A. Where is the project located?

B. What resources are affected by the project?

C. What specific activities does the project involve?

If the project is located within *Geographic Area*, then,

Geographic Area	Agency	Permit
From 3 miles offshore to 1,000 yards inland.	Coastal Commission	Coastal development permit
San Francisco, San Pablo, and Suisun Bays from high-water to 100 feet inland	San Francisco Bay Conservation and Development Commission	Development permit
Lake Tahoe Watershed	Tahoe Regional Planning Agency	Development permit
Floodways in the Central Valley	The Reclamation Board	Encroachment permit

---

If the project affects *Resources*, then,

Resource	Agency	Permit
Air	Air Pollution Control Districts	Authority to Construct and Permit to Operate for activities emitting pollutants to the atmosphere
Fish and wildlife habitat	Department of Fish and Game	Stream or Lake Alteration Agreements for activities in streams or lakes and channels and crossings
Water	State Lands Commission	Land Use Lease for encroachments, docks, crossings on tide and submerged lands
	State Water Resources Control Board, Regional Boards	National Pollutant Discharge Elimination System Permit or Waste Discharge Requirements for discharges to surface water
	State Water Resources Control Board, Division of Water Rights	Permit to Appropriate Water and Statement of Diversion and Use for activities diverting surface water not previously appropriated
	United States Army Corps of Engineers	Permit for dredging, filling, docks, groins, and jetties

If the project involves *Activity*, then,

Activity	Agency	Permit
Commercial, Industrial, Residential development	Local Agency	Land Use, i.e., Local General Plans, Specific Plan, Conditional Use or Subdivision
Power Plants and and transmission lines	California Energy Commission	Notice of Intention and Application for Certification
	Public Utilities Commission	Certificate of Public Convenience and Necessity
Timber harvesting	California Department of Forestry	Timber Operators License and Timber Harvesting Plan
Conversion of timber-land to non-forest uses thru timber operations, and immediate TPZ rezoning	California Department of Forestry	Timberland Conversion Permit
Expansion of hospital facilities and establishment of clinics	Office of Statewide Health Planning and Development	Certificate of Need
Construction of a trailer court or mobile home park	Department of Housing and Community Development	Permit to Construct
Pipelines, railroad crossings, and freight charges	Public Utilities Commission	Certificate of Public Convenience and Necessity
Solid waste facilities -- Construction and expansion	Solid Waste Management Board	Solid Waste Facility Permit
Prospecting for minerals on state lands	State Lands Commission	Prospecting permit
Right-of-way across state park land	Department of Parks and Recreation	Right-of-Way Permit
Oil, gas, or geothermal well	Department of Conservation, Division of Oil and Gas	Oil, Gas, or Geothermal Well Permit
	State Lands Commission	Geothermal Exploration or Prospecting Permit
Encroachment on or across a state highway	Department of Trans-portation	Encroachment Permit
All activities involving dams or reservoirs	Department of Water Resources, Division of Safety of Dams	Approval of Plans
Dredging	Department of Fish Game	Standard for Special Suction Dredging Permits
	State Lands Commission	Dredging Permit
Federal lands land use	U.S. Forest Service Department of the Interior	See Specific Reference

City Council Policy No. 58

SEBASTOPOL CITY COUNCIL POLICY
LAGUNA DE SANTA ROSA

A. Background

On November 18, 1986, the Sebastopol City Council adopted Council Policy No. 55 - "Appointing a Laguna Advisory Committee" (copy attached hereto as "Appendix A"). That Policy asked the Committee to "look at ways, and make recommendations to the City Council, on how to further protect the Laguna de Santa Rosa, its flora and fauna, in terms of possible "nature preserve", public land acquisition, trusts, purchase of development easements; and programs, projects and enhancement; and development of a management "plan".

In January, 1988, the Laguna Advisory Committee submitted its Report to the City of Sebastopol. On January 19, 1988, the City Council referred the Committee Report to the Planning Commission, for review and recommendation.

During March and April, 1988, the Planning Commission conducted a series of work/study sessions, including a Public Hearing. The Planning Commission's recommendation was forwarded to the City Council on April 12, 1988. Subsequently, during the period of April-September, 1988, the City Council also conducted a series of study sessions and Public Hearings.

During the course of the Planning Commission and City Council review, several aspects of the Committee Report were clarified and focused, including:

1. Recognition that the Laguna de Santa Rosa encompasses an area of 8,000± acres, and that, while the area within Sebastopol's Sphere of Influence is only a small fraction of that acreage, Sebastopol is the only incorporated community along the Laguna. Accordingly, potential effects of urbanization on the Laguna are important concerns for the City of Sebastopol.

2. Identification of what portions of Sebastopol's Sphere of Influence were intended by the Committee to be subject to a policy of "no development", and what portions were intended to be subject to a policy of development via "no net fill".

   During the course of reviewing these two issues, the Council conducted a separate hearing on "no development", and considered a separate staff report and analysis of "no net fill". The City Council, ultimately, did not adopt the "no net fill" recommendation.

3. Recognition that the City of Sebastopol can take specific action for that portion of the Laguna within the City limits, but can act in an advocacy capacity only for those portions of the Laguna outside of the city limits.

As a culmination of this extensive Commission/Council review and deliberation, the City Council has prepared this Policy as a statement of City Council consensus. This Policy represents a synthesis and compilation of laguna protection policies, based on the applicable recommendations and suggestions of the Laguna Advisory Committee Report.

As a result of the efforts by both the Laguna Advisory Committee's efforts, and of the City Council, committees to further study the protection and enhancement of the entire Laguna environment have been formed at both the County and Federal government levels. It is the intent of the Council Policy to work in concert with the ultimate recommendations of those committees.

B. General Statement of City Council Policy

1. It is the underlying policy of the Sebastopol City Council that the natural, currently undeveloped portions of the Laguna, which are functional components of the native Laguna ecosystem, be preserved, protected and enhanced for long-term public benefit and enjoyment (See Appendix "B").

2. A fundamental concept of Council Laguna Policy is that public ownership, private ownership (via land trust, etc.), annexation, and/or zoning which can guarantee permanent retention of open space along the Laguna, leads to public protection for public benefit.

3. Some of the urbanized areas of Sebastopol, including most of the employment-generating industrial and heavy-commercial land use areas, are below the 100-year flood plain of the Laguna de Santa Rosa, but are not a functional component of the Laguna ecosystem. It is the policy of the City of Sebastopol that these areas be permitted to be developed for urban purposes; the City encourages the use of construction techniques and designs which preserve the flood-storage capacity of the entire Laguna system (e.g., elevated structures, "no net fill" practices, etc.) (See Appendix "B").

C. Specific Statements of City Council Policy

1. Policies applicable to those portions of the Laguna within the City limits and/or the City's Sphere of Influence, as delineated by Sonoma County LAFCO.

a. Park/Public Use Development

(1) A Riparian Protection Ordinance will be prepared to preserve and enhance the remaining open, natural stretches of creeks within Sebastopol. Restoration of creeks currently within conduits will also be investigated.

(2) The City encourages public acquisition and annexation of lands along the Laguna in order to maximize public benefit of the Laguna, including recreation, where feasible.

(3) Public pedestrian access via trail(s) and overlook(s) will be created. This may be accomplished in conjunction with the Laguna Youth Park.

(4) The City encourages the maintenance of existing riparian woodlands, including replanting of disturbed areas and/or allowing for natural succession, and replanting of valley oaks, protecting them from grazing.

b. Programs/Ordinances

(1) Laguna informational and educational programs should be developed to broaden support for Laguna protection.

(2) Within "interface" areas between developed/developable properties, and "natural" areas, native vegetation will be preserved, and vegetation loss will be mitigated by plant replacement. Supplemental vegetation to address visual and audible protection of the Laguna should also be considered. These considerations shall be an integral component of the City's environmental review process. A definition of "significant effect" will be incorporated into the City's CEQA implementing procedures as it applies to vegetation removal, fill, grading, and drainage.

(3) Well-defined, long-range plans for publicly-owned portions of the Laguna including protection and/or enhancement of its natural resources, should be prepared.

(4) The City should encourage household toxin collection programs and should expand efforts to prevent and discourage surface discharges.

(5) The Wetlands Combining Districts shall be amended to address development areas on the "fringe" of the Laguna, and to re-examine areas to be within the "W-1" (Primary Wetlands) Combining District.
(6) Alternatives to hard surface paving shall be explored in order to reduce impervious surfaces.
(7) Alternatives to traditional storm drainage shall be explored in order to maximize ground water recharge to create/maintain natural surface flows, and to slow discharge rates to the Laguna.

c. Administrative Procedures
(1) The City Manager will establish a high level of awareness among City staff, of the authority and responsibility of other governmental agencies in Laguna/Wetlands protection, and of pollution potential in activities under City control.
(2) It is the responsibility of all City employees to be aware of/detect possible problems such as violations of laws, vegetation loss, or fill.
(3) Explore the formation of an on-going Laguna Advisory Committee to assist and advise the City Council on matters of Laguna protection.
(4) Construction and/or fill applications outside the City limits, but within the Sphere of Influence, should be regularly monitored by City staff. Comments on such applications shall be pursuant to City Council Policy 57.

2. Policies applicable to those portions of the Laguna outside of the City limits and/or Sphere of Influence, for which the City may act in an advocacy capacity only:

a. The City urges the County to develop a Laguna Land Use Management Plan.
b. The City supports strong County Riparian controls, and encourages stronger coordination between the City, City of Santa Rosa, and County governments.
c. The City, along with the County should attempt to monitor water rights applications, by requesting notification from the State Water Rights Control Board.

d. Irrigation using advanced treated effluent from the Llano Road Treatment Plant should be continued and increased, while protecting oak trees from negative effects of such irrigation, including the City's spray irrigation field east of the Laguna.
e. A minimum target flow in the Laguna channel should be established and maintained, consistent with fish and wildlife requirements.
f. The City of Santa Rosa, County of Sonoma, and other agencies are encouraged to evaluate negative effects of changes in water quantity; dewatering of the Laguna should be discouraged.
g. Encourage the Sonoma County Water Agency and others to pursue streamside fencing and riparian zone revegetation.
h. In order to control the negative effects of grazing, the City encourages the County to seek further cooperation from land owners to provide fencing on each side of the Laguna riparian corridor.
i. The City encourages the EPA and other governmental agencies with jurisdiction within the Laguna to enforce their regulations without waiting for a specific complaint.

D. Implementation/Programs

As initial definitive steps toward implementing the policies outlined above, the City Council is directing:

1. That City staff formally request notification of water rights applications from the State Water Rights Control Board.
2. That the City forward this Policy, and related ordinances to State and Federal governmental agencies.
3. That County referrals be responded to pursuant to City Council Policy #57. (Exhibit "C").
4. That the City continue to participate in the formulation of the regional wastewater management plan to ensure protection of water quality in the Laguna.
5. That the City continue regional and local efforts to implement a Laguna Park.
6. That the Wetlands Ordinance be retained and strengthened as necessary.

ADOPTED: December 20, 1988

MAYOR

ORDINANCE NO. 851

ORDINANCE AMENDING ORDINANCE NO. 353, THE ZONING ORDINANCE OF THE CITY OF SEBASTOPOL, TO REVISE THE TEXT OF SECTION 5.6 THEREOF (WETLANDS DISTRICTS)

THE CITY COUNCIL OF THE CITY OF SEBASTOPOL DOES ORDAIN AS FOLLOWS:

SECTION 1. Section 5.6 of Ordinance No. 353 is amended to read as set forth on Exhibit "A" attached hereto and incorporated herein by reference.

SECTION 2. Pursuant to said amendment, lands currently within any "W" (Wetlands) Combining District will be affected as follows:

Current District(s)	New District(s)
"CF-W1" Combining District	"W" Base District
"RA-W1" Combining District	"W" Base District
"W-2" Combining District	"W-S" Combining District
"W-3" Combining District	"W-F" Combining District

SECTION 3. A Negative Declaration for said amendment is herewith adopted.

SECTION 4. This Ordinance shall be in full force and effect thirty (30) days from and after the date of its passage.

IN COUNCIL DULY PASSED this 18th day of July, 1989.

APPROVED: _____
Mayor

AYES: 5 Councilmen Johnson, Magnie, Roventini, Stewart & Mayor Miller

NOES: 0

ABSENT: 0

ATTEST: _____
City Clerk

(353-2)

SECTION 5.60 WETLANDS DISTRICTS (W, WS COMBINING, WF COMBINING)

5.61 PURPOSE, INTENT AND APPLICABILITY - The purpose of the Wetlands Districts is to preserve and protect environmentally sensitive waterways and/or wetland areas. It is the intent of these Districts to establish land use limitations, consistent with natural resource preservation of wetland areas. Accordingly, there are hereby established three Wetlands Districts:

A. "W" (Primary Wetlands) District, applicable to those lands lying below the 100-year flood line which are in an open, natural state, and which contain, or which could feasibly contain, natural and native wetlands and related vegetation/habitat areas;

B. "WS" (Secondary Wetlands) Combining District, applicable to those lands lying below the 100-year flood line, which are in a biologically altered state, but which have a direct physical or functional relationship to a wetlands area and its ecosystem. These lands may or may not contain wetlands or related vegetation.

C. "WF" (Wetlands Fringe) Combining District, applicable to those lands lying above the 100-year flood line, but which abut a "W", or "WS" Combining, District, or a primary wetlands area outside of the City limits, or which has a significant influence on a wetlands area and its ecosystem.

These regulations shall apply in all "W" Districts.

5.62 DISTRICTS WITH WHICH THE "WS" AND "WF" DISTRICTS MAY BE COMBINED - The "WS" and "WF" Districts may be combined with any base District. All standards and requirements of the base district shall apply, except as may be modified by the "WS" or "WF" Combining District.

5.63 USES PERMITTED

A. "W" (Primary Wetlands) District

1. Permitted Uses: None; all uses require a Use Permit.

2. Uses Permitted with a Use Permit: the following uses, pursuant to the general Use Permit criteria of Section 7.23, and the Development Criteria of Section 5.64:
   (a) Open, passive recreational areas, parks, wildlife preserves, including accessory facilities (walkways, information kiosks, etc.), related to such open use.
   (b) Open agricultural uses, not including any buildings.
   (c) Temporary dredging, filling, dewatering or other activities may be undertaken in order to place, install, service or maintain utilities or similar improvements within or across the area only during such periods and in such manner as to reduce as much as reasonably practicable the significant detrimental effects, such activities may have on wildlife within, or on the hydrological integrity of the area.
3. Minimum Lot Area: One Acre.
4. Minimum Setbacks/Yard Requirements: As established by Use Permit.
5. Native vegetation occuring within the "H" District shall not be removed, degraded, or damaged except as a result of activities otherwise permitted by these provisions.

B. "HS" (Secondary Wetlands) Combining District

1. Permitted Uses: None; all uses require a Use Permit.
2. All uses, as permitted or conditionally permitted by the underlying base district, pursuant to the general Use Permit criteria of Section 7.23, and the Development Criteria of Section 5.64.

C. "HF" (Wetlands Fringe) Combining District

1. Permitted Uses: All uses, as permitted or conditionally permitted by the underlying base district, subject to the Development Criteria of Section 5.64 and the "Vernal Pool/Rare Plant and Native Vegetation Survey" of Section 5.65

5.64 DEVELOPMENT CRITERIA

A. All Applications for Use Permit, Zoning Permit, Design Review, Building Permit, or other land use

entitlement in the "W" or "WS" Combining District, shall include written comments, recommendations and/or requirements from the following agencies, with said Application(s) deemed incomplete for processing until those comments, recommendations and/or requirements are filed by the applicant with the City of Sebastopol:

1. California Department of Fish and Game
2. U.S. Army Corps of Engineers

B. All applications for Use Permit, Zoning Permit, Design Review, Building Permit, or other land use entitlement within the "W" or "WS" Combining District shall be referred to the following agencies for comment:

1. California Native Plant Society
2. Mosquito Abatement District

The comments, if any, by these agencies, shall be considered by the City in the processing of the Application(s). If comments from an agency are not received within 30 days of referral, it will be presumed that such agency(s) have no comment.

C. Applications for development of lands below the 100-year flood line within any Wetlands District, shall demonstrate compliance with the requirements of, or City Council approval pursuant to, Ordinance No. 727 (Flood Damage Prevention Ordinance), prior to Use Permit approval.

D. A "Vernal Pool/Rare Plant and Native Vegetation Survey", pursuant to Section 5.65, shall be required, prior to Use Permit approval.

E. All excavation, filling or other earthmoving activities within the "WS" or "WF" District shall be conducted in such a manner that erosion and silting of surface water runoff into a wetland area will not occur. Where areas within a "WS" or "WF" District are exposed and subject to erosion due to such excavation, filling or other earthmoving activities, temporay grass cover or other soil stabilizing vegetation shall be established immediately upon completion of such activities if such exposure and erosion would otherwise result in erosion or siltation of any portion of a wetland area.

F. Fill or other earthmoving activities within the "WS" or "WF" District shall be permitted. When adjacent to a "W" District, (or wetlands area within a "WF" or "WS" District as identified by the State of California Department of Fish and Game), upon completion of fill or similar earthmoving activities, a setback area shall be established, with a profile not exceeding with the characteristics of "Type A", or "Type B", as depicted by Figure 1.

G. Placement of landfill and topsoil within the setback area should be accomplished before October 15, in order to provide adequate opportunity for revegetation to occur during the ensuing growing season. Pending permanent revegetation, filled areas within "WS" and "WF" Districts should be planted with temporary grass cover, winter cereal grains (broadcast at a rate of not less than 100 lbs. per acre), or other soil-stabilizing vegetation for fast and effective control of any erosion or siltation that would otherwise occur.

H. Provision for fencing, in order to protect the waterway channel from the effects of livestock grazing, shall be incorporated into any Application for Use Permit within the "W" District.

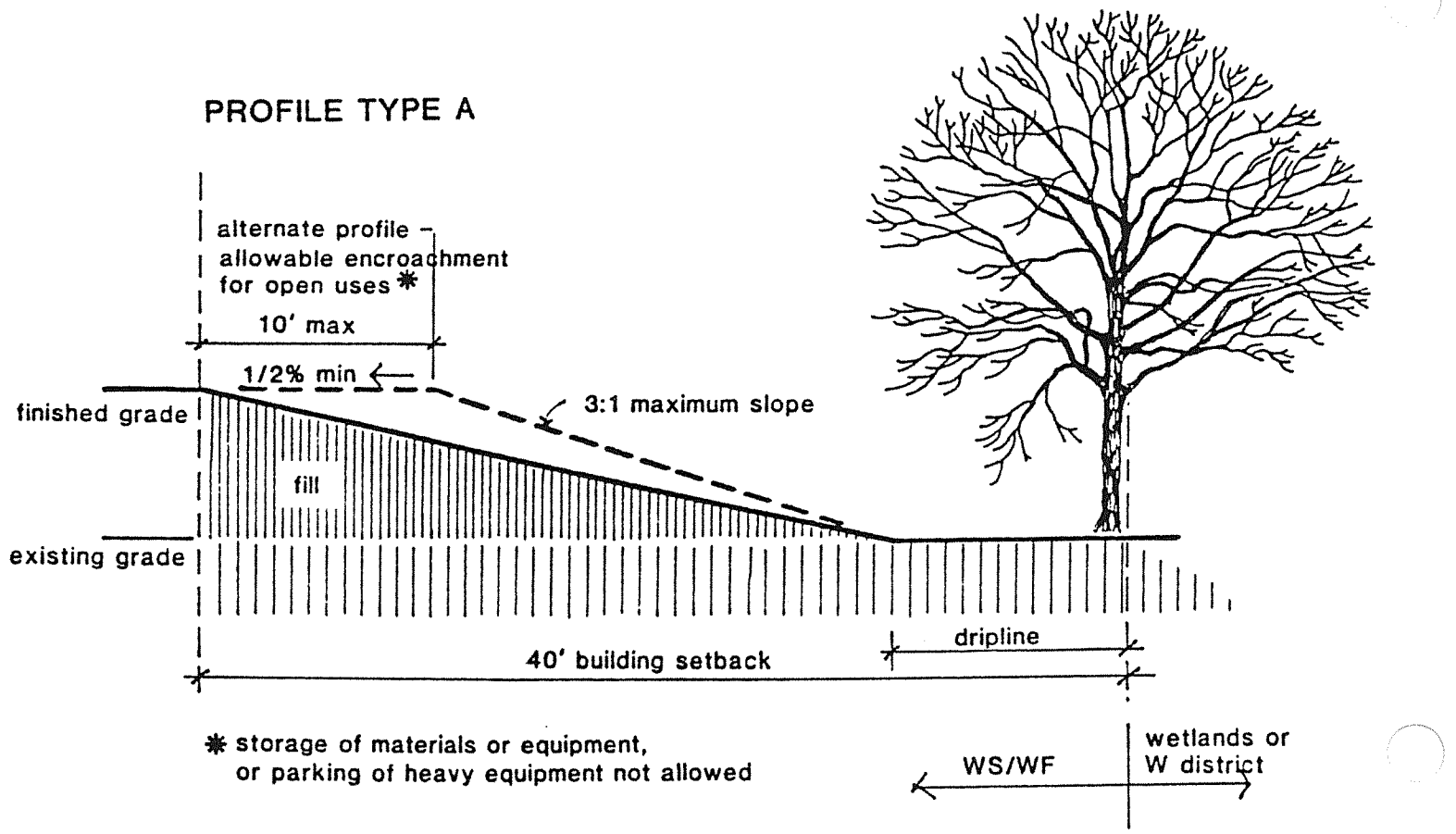
I. Provision for the safe handling, storage and disposal of any material that is known to be toxic to wetland vegetation or wildlife shall be made and guaranteed in any Application for Use Permit. No permanent repository, storage facility, or waste dump for such materials shall be permitted.

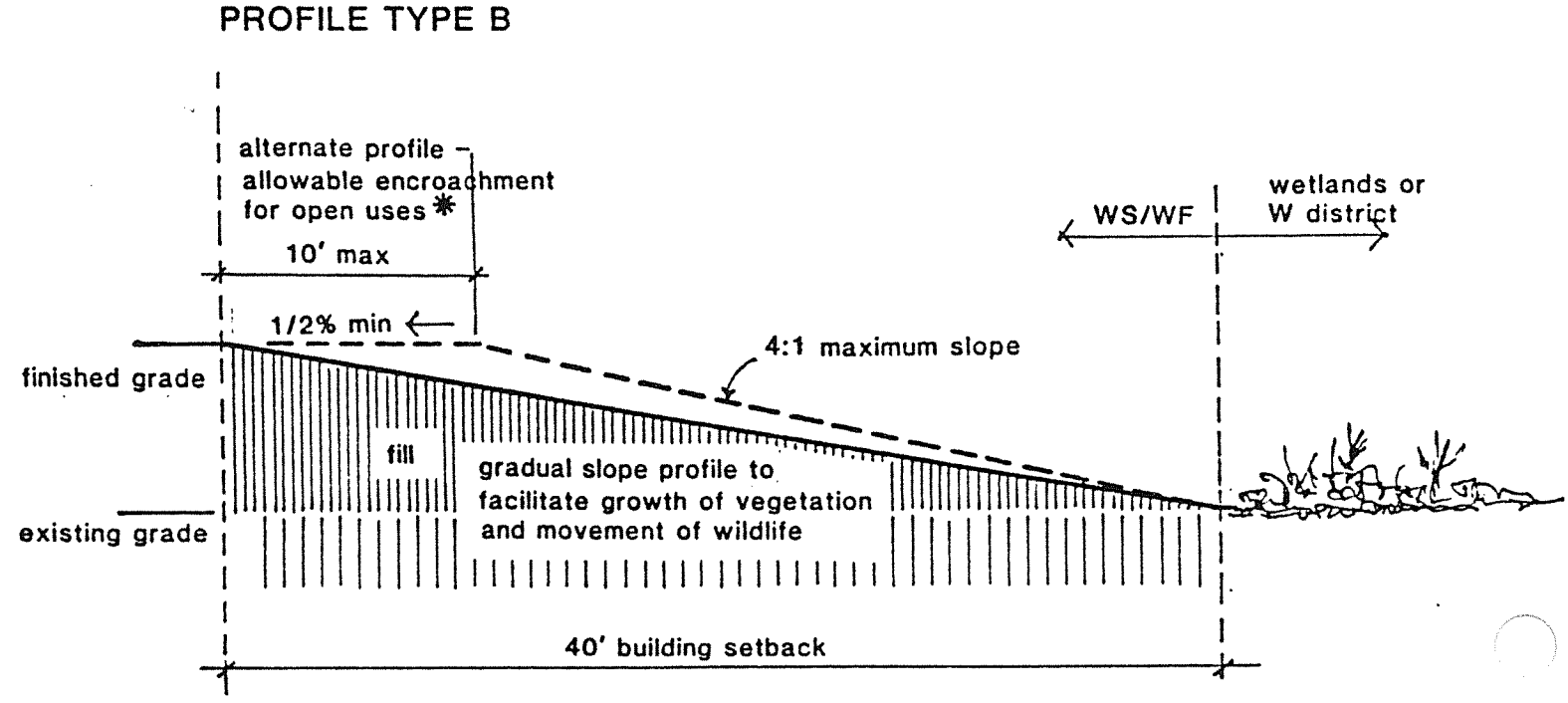
J. The type, duration and manner of use of any insecticides and/or herbicides within any Wetlands District shall have been approved by the Environmental Protection Agency.

K. Vegetation/Revegetation

1. In conjunction with the development of properties within a "WS" or "WF" combining District, adjacent to a "W" District or wetlands area, the perimeter of such properties shall be seeded or planted to establish or re-establish a vegetation cover compatible with the adjacent wetland habitats insofar as practicable.

FIGURE 1


PROFILE TYPE A
alternate profile –
allowable encroachment
for open uses *
10' max
1/2% min
3:1 maximum slope
finished grade
fill
existing grade
dripline
40' building setback
* storage of materials or equipment,
or parking of heavy equipment not allowed
WS/WF
wetlands or
W district


PROFILE TYPE B
alternate profile –
allowable encroachment
for open uses *
10' max
1/2% min
4:1 maximum slope
finished grade
fill
gradual slope profile to
facilitate growth of vegetation
and movement of wildlife
existing grade
40' building setback
WS/WF
wetlands or
W district
* storage of materials or equipment,
or parking of heavy equipment not allowed

2. Areas where vegetation adjacent to wetlands vegetation has been removed or altered incidental to development or usage of land areas within a "WS" or "WF" District which occcurs by reason of filling, excavation or other activities, shall be seeded or planted so as to re-establish native vegetation compatible with the adjacent wetlands area, of the character, type and density that occurred in the areas affected prior to such removal or alteration.

3. Revegetation as required by the provisions of this section shall begin as soon as practicable, but in no event later than 60 days, after cessation of development, unless otherwise approved by the City. Such revegetation shall be deemed to comply with the requirements of this chapter if approved or recommended as to type, species and placement by the California Department of Fish and Game.

5.65 VERNAL POOL/RARE PLANT AND NATIVE VEGETATION SURVEY

A. When required by Section 5.63 or 5.64, a Survey of a a site or portion thereof proposed for development, shall be undertaken in order to evaluate the existence of vernal pools, rare and/or endangered plants and/or native vegetation, and the effect, if any, the proposed development may have thereon. Such Survey shall:

1. Include a site plan showing the location of the vernal pool, rare and/or endangered plant(s), and/or native vegetation,
2. Include textual documentation as to whether the plant(s) are officially recognized as "rare", and whether the plant(s) and/or pool is a valuable biological resource,
3. Be prepared by a qualified botanist, and whose credentials/capabilities are recognized by the California Department of Fish and Game.
4. Recommend, if necessary, appropriate and feasible measures to be taken in the development of the property in order to protect a documented resource.

B. Upon receipt by City staff, the Vernal Pool/Rare Plant and Native Vegetation Survey shall be forwarded to the City Council for review and approval. Upon

City Council approval, any proposed development shall be in accordance with the recommendation(s) of the Survey.

5.66 VARIANCES/EXCEPTIONS - Applications for variances within any Wetlands District shall be approved only if satisfying the findings of Section 7.31, and the following additional findings:

A. That adjacent properties would not be adversely affected by such variance, and
B. That the requested variance would not affect property unique to the waterways or wetlands environment.

101ST CONGRESS
1ST SESSION

H. R. 2548

To provide for the establishment of the Laguna de Santa Rosa National Wildlife Refuge in Sonoma County, California.

IN THE HOUSE OF REPRESENTATIVES

JUNE 6, 1989

Mr. BOSCO (for himself, Mr. ANDERSON, Mr. BATES, Mr. BEILENSON, Mr. BERMAN, Mr. BILBRAY, Mrs. BOXER, Mr. BROWN of California, Mr. COELHO, Mr. DELLUMS, Mr. DIXON, Mr. DYMALLY, Mr. EDWARDS of California, Mr. FAZIO, Mr. HAWKINS, Mr. HERTEL, Mr. HUGHES, Mr. LANTOS, Mr. LEHMAN of California, Mr. LEVINE of California, Mr. LIPINSKI, Mr. MARTINEZ, Mr. MATSUI, Mr. MILLER of California, Mr. MINETA, Mr. PANETTA, Ms. PELOSI, Mr. ROYBAL, Mr. STARK, Mr. TORRES, and Mr. WAXMAN) introduced the following bill; which was referred to the Committee on Merchant Marine and Fisheries

---

A BILL

To provide for the establishment of the Laguna de Santa Rosa National Wildlife Refuge in Sonoma County, California.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. FINDINGS.

The Congress finds the following:

(1) The area in Sonoma County, California, known as the Laguna de Santa Rosa is one of the

most significant coastal freshwater wetlands in California.

(2) The Laguna de Santa Rosa supports a wide diversity of plants and animals, including several endangered species of plants, birds, and fishes.

(3) The Laguna de Santa Rosa is an important wintering and nesting area for migratory waterfowl and a nursery for federally managed anadromous fisheries.

(4) Urban development, ineffective land and water management practices, overlapping Federal, State, and local jurisdictions, and inadequate enforcement of existing regulations have hampered efforts to conserve the Laguna de Santa Rosa.

(5) Thousands of acres of wetlands habitat in the Laguna de Santa Rosa have been lost or degraded.

(6) State and local efforts to preserve the Laguna de Santa Rosa are underway, but severely limited resources prevent the type of sustained management and acquisition efforts needed to halt the degradation of this valuable wetlands area.

(7) The Laguna Technical Advisory Committee, a group of agencies and individuals with experience in Laguna de Santa Rosa resource management, has de-

veloped and proposed specific actions to protect, restore, and enhance those wetlands.

(8) The establishment of a National Wildlife Refuge at the Laguna de Santa Rosa, is needed to protect remaining wetland habitat in the Laguna de Santa Rosa and the many fish, wildlife, and plant communities that exist there.

SEC. 2. PURPOSES OF REFUGE.

The purposes of the Refuge to be established by the Secretary under section 3 are—

(1) to protect, restore, and enhance in the Refuge—

(A) habitat for migratory birds and other native wildlife species;

(B) fish habitat;

(C) native plant communities; and

(D) endangered species and other species that no longer occur in the wetlands of the Laguna de Santa Rosa;

(2) to manage water supplies in the Refuge to best satisfy the needs of native plant and wildlife communities while maintaining water quality standards for the Russian River basin established by the California Regional Water Quality Control Board;

(3) to protect archaeological and historical sites in the Refuge;

(4) to provide public use opportunities in the Refuge; and

(5) to maintain the flood control capacity of the Laguna de Santa Rosa flood plain.

SEC. 3. ACQUISITION OF LANDS AND WATERS; ESTABLISHMENT.

(a) SELECTION OF LANDS AND WATERS.—

(1) IN GENERAL.—Within 90 days after the date of the enactment of this Act, the Secretary shall—

(A) designate approximately 9,000 acres of lands, waters, and interests therein within the selection area as land which the Secretary considers appropriate for the Refuge;

(B) prepare a detailed map depicting the boundaries of the land designated under subparagraph (A), which shall be kept on file and available for public inspection at offices of the United States Fish and Wildlife Service; and

(C) publish notice in the Federal Register of such availability.

(2) REVISION OF BOUNDARIES.—The Secretary may make such minor revisions in the boundaries of the area designated under paragraph (1)(A) as may be

appropriate to carry out the acquisition of property for the Refuge.

(b) ACQUISITION.—The Secretary shall acquire (by purchase on a willing seller basis with donated or appropriated funds, acceptance of donation, exchange, or any combination thereof) 6,000 acres of lands, waters, and interests therein within the boundaries of the area designated under subsection (a)(1)(A).

(c) ESTABLISHMENT OF REFUGE.—The Secretary shall establish the Laguna de Santa Rosa National Wildlife Refuge by publication of notice to that effect in the Federal Register at such time as the Secretary determines that sufficient lands, waters, and interests therein have been acquired under this section to constitute an initial area that can be administered to carry out the purposes set forth in section 2.

SEC. 4. MANAGEMENT OF REFUGE.

(a) MANAGEMENT PLAN.—

(1) IN GENERAL.—Not later than 1 year after the Secretary establishes the Refuge pursuant to section 3(c), the Secretary shall formulate, adopt, and begin implementing a resource management plan for the Refuge to achieve the purposes set forth in section 2. The Plan shall—

(A) designate areas within the Refuge according to their respective resources;

(B) specify the programs to be undertaken to conserve and manage fish and wildlife in the Refuge and to achieve each of the purposes set forth in section 2;

(C) specify uses authorized to be conducted in each area designated pursuant to subparagraph (A) which are compatible with the purposes of the Refuge; and

(D) describe opportunities which will be provided within the Refuge for fish and wildlife related recreation and environmental education, and for interpretation of the resources of the Refuge.

(2) CONTENTS OF PLAN.—The Plan shall, to the extent of the authority of the United States Fish and Wildlife Service, provide for—

(A) management practices for the Laguna de Santa Rosa watershed to further the goal of rehabilitating the Refuge;

(B) maintenance of agriculture and agricultural practices in the Laguna de Santa Rosa that are compatible with wildlife management in the Refuge;

(C) coordinating land use and water policies and practices of the various public agencies with jurisdiction affecting the Refuge;

(D) better enforcement of existing Federal, State, and local laws affecting the Refuge; and

(E) development of a coordinated land-use plan for the Refuge which includes adoption and implementation of cooperative agreements with owners of land adjacent to the Refuge under which that land will be managed in a manner beneficial to the Refuge.

(b) COOPERATION WITH CALIFORNIA DEPARTMENT OF FISH AND GAME.—

(1) IN GENERAL.—In preparing the Plan and any subsequent revisions thereto, the Secretary shall consult with the Director of the California Department of Fish and Game, and shall hold public hearings to ensure that local residents and other interested parties have the opportunity to present their views with respect to the Plan and such revisions. Before adopting the Plan, the Director shall consider the views and comments of all interested parties.

(2) MEMORANDUM OF UNDERSTANDING.—Not later than 60 days after the Plan is adopted by the Secretary in final form the Secretary shall seek to enter into a memorandum of understanding with the Director of the California Department of Fish and Game which sets forth the respective responsibilities

and authorities of the parties to the memorandum for implementing the Plan.

SEC. 5. CONSULTATIONS.

In carrying out this Act the Director shall when practicable consult with affected State and local governments and interested conservation, agriculture, and business groups.

SEC. 6. DEFINITIONS.

In this Act—

(1) DIRECTOR.—The term "Director" means the Director of the United States Fish and Wildlife Service.

(2) LAGUNA DE SANTA ROSA.—The term "Laguna de Santa Rosa" means the general area of wetland and upland habitats located in south central Sonoma County, California, commonly referred to by that name.

(3) PLAN.—The term "Plan" means the management plan adopted under section 4 for the Refuge.

(4) REFUGE.—The term "Refuge" means the Laguna de Santa Rosa National Wildlife Refuge established by the Secretary under section 3.

(5) SECRETARY.—The term "Secretary" means the Secretary of the Interior.

(6) SELECTION AREA.—The term "selection area" means those lands and waters that are depicted

on the map dated February 1, 1989, on file with the United States Fish and Wildlife Service.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

For acquiring lands, waters, and interests therein under section 3 there are authorized to be appropriated to the Secretary of the Interior not more than $20,000,000, which shall remain available until expended.

○